ORDER NO. SD8001-1663

Service Manual

Direct Drive Automatic Turntable System

SL-10

(XG), (XGF), (XGB), (XAL), (E), (XA), (XGE)

Areas

- *(XG) is available in European.
- *(XGF) is available in France.
- *(XGB) is available in Belgium.
- *(XAL) is available in Australia.
- *(E) is available in Scandinavia.
- *(XA) is available in Asia, Latin America, Middle East and Africa.
- *(XGE) is available in United Kingdom.

Specifications

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

General

Power supply:	∼110-120/220-240V, 50Hz or 60Hz DC 12 V (DC input jack)
Power consumption:	20 W (AC) 6 W (DC)
Dimensions: (W x H x D)	31.5 x 8.8 x 31.5 cm (12-1/2" x 3-1/2" x 12-1/2")
Weight:	6.5 kg (14.3 lb.)

Turntable section

Type:	Quartz direct drive Automatic turntable Auto start/Auto lead-in Auto return Auto stop Repeat play Auto speed select Auto size select 2-speed search functions Record presence detection
Drive method:	Direct drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase-locked control
Turntable platter:	Aluminum die-cast Diameter 30 cm (12 inches)
Turntable speeds:	33-1/3 rpm and 45 rpm Auto speed select (Manual selection possible)
Speed deviation:	Within ±0.002%
Wow and flutter:	0.012% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)

*Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble:	−56 dB (IEC 98A Unweighted) −78 dB (IEC 98A Weighted)

Tonearm section

Type:	Dynamic balanced type Linear tracking tonearm 4-pivot gimbal suspension
Effective length:	105 mm (3-31/32")
Tracking error angle:	Within ±0.1°
Effective mass:	9 g (including cartridge)
Resonance frequency:	12 Hz
Tonearm drive motor:	Coreless DC motor

Cartridge section

Type:	Moving coil stereo cartridge Coreless twin-ring coil type
Cantilever:	Pure boron pipe
Damper	TTDD (Technics Temperature Defense Damper)
Frequency response:	10 Hz to 60 kHz 10 Hz to 10 kHz ±0.5 dB
Output voltage:	0.2 mV at 1 kHz, 5 cm/s. zero to peak lateral velocity (0.56 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation:	More than 25 dB at 1 kHz More than 20 dB at 10 kHz
Channel balance:	Within 1 dB at 1 kHz
DC resistance:	30Ω
Impedance:	30Ω Pure resistance
Compliance (dynamic):	12×10^{-6} cm/dyne at 100 Hz
Vertical tracking angle:	20°
Stylus pressure range:	1.25 ±0.25 g (12.5 ±2.5 mN)
Stylus tip:	0.2 x 0.7 mil (5 x 8μm) Elliptical stylus Block diamond tip
Effective mass:	0.23 mg
Weight:	6.0 g (cartridge only)
Replacement cartridge:	EPS-310MC

MC pre-preamp section

Rumble:	−70 dB (IHF A)
Frequency response:	20 Hz to 20 kHz ±0.5 dB
Output level:	2.5 mV
Overall distortion:	0.02% (connected to Technics SU-70AII)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Technische Daten

Änderungen der technischen Daten vorbehalten.
Die angegebenen Gewichts- und Abmessungsdaten sind circa Werte.

Aligémein Daten

Stromversorgung:	~110-120/220-240 V, 50/60 Hz Wechselstrom 12V Gleichstrom (Ausgestattet mit Gleichstrom-Eingangsbuchse)
Leistungsaufnahme.	20 W (Wechselstrom) 6W (Gleichstrom)
Abmessungen (B x H x T)	31,5 x 8,8 x 31,5 cm
Gewicht.	6,5 kg

Plattenspieler

Typ:	Quarz-Direktantrieb Automatischer Plattenspieler Auto-Start/Auto-Zuführung Rückführautomatik Stop-Automatik Wiederhol-Betrieb Automatische Drehzahlwahl Automatische Plattengrößewahl 2-Geschwindig-keiten-Suchfunktionen Plattenpräsenz-Registrierung
Antrieb:	Direktantrieb
Motor:	Kollektorloser Gleichstrommotor
Antriebsregel-Methode:	Quarz-Steuerung (QPL)
Plattenteller:	Aluminium-Druckguß Durchmesser 30 cm
Plattenteller-Drehzahlen:	33-1/3 und 45 U/min Automatische Drehzahlwahl (manuelle Wahl möglich)
Drehzahlabweichung:	Innerhalb ±0,002%
Gleichlaufschwankungen:	0,012% WRMS* 0,025% WRMS (JIS C5521) ±0,035% Spitze (IEC 98A bewertet)

* Gemessen anhand von Signalen vom eingebauten Frequenzgenerator des Motorbauteils.

Rumple-Fremdspannungsabstand:	−56 dB (IEC 98A unbewertet)
Rumpel-Geräuschspannungsabstand:	−78 dB (IEC 98A bewertet)

Tonarm

Typ:	Dynamisch ausbalancierter Tangential-Tonarm mit Kardanaufhängung mit 4-Punkt- Drehlager
Effektive Länge:	105 mm
Spurfehlwinkel:	Innerhalb±0,1°
Effektive Masse:	9 g (einschließlich Tonabnehmer)
Resonanzfrequenz:	12 Hz
Tonarm-Antriebsmotor:	Kernloser Gleichstrommotor

Tonabnehmer

Typ:	Dynamischer Stereo-Tonabnehmer (MC), Kernloser Doppelringspulen-Typ
Nadelträger:	Röhre aus reinem Bor
Dämpfer:	TTDD (Technics Temperature Defense Damper)
Frequenzgang:	10 Hz bis 60 kHz 10 Hz bis 10 kHz ±0,5 dB
Ausgangsspannung:	0,2 mV bei 1 kHz 5 cm/s. Null-zu-Spitze, lateral [0,56 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanalternnung:	Mehr als 25 dB bei 1 kHz Mehr als 20 dB bei 10 kHz
Kanalabweichung:	Innerhalb 1 dB bei 1 kHz
Gleichstromwiderstand:	30 Ω
Impedanz:	30 Ω (Reiner Widerstand)
Nachgiebigkeit:	12 x 10^{-6} cm/dyn bei 100 Hz
Vertikaler Spurwinkel:	20°
Auflagekraft-Einstellbereich:	1,25 ± 0,25 g (12,5 ± 2,5 mN)
Nadelspitze:	0,2 x 0,7 Mil (5 x 18 µm) Elliptisch geschliffene Blockdiamantspitze
Effektive Masse:	0,23 mg (nur Tonabnehmer)
Gewicht:	6,0 g
Ersatz-Tonabnehmer	EPS-310MC

Vor-Vorverstärkerteil für dynamischen Tonabnehmer (MC)

Rumpelabstand:	−70 dB (IHF A)
Frequenzgang:	20 Hz bis 20 kHz ±0,5 dB
Ausgangspegel:	2,5 mV
Gesamtklirrfaktor:	0,02% (angeschlossen an Technics SU-70AII)

Spécifications

Les spécifications sont susceptibles d'être modifiées sans préavis.
Le poids et les dimensions donnés sont approximatifs.

Généralités

Alimentation:	Alternatif 110-120/220-240V, 50 ou 60 Hz 12V C.C. (Equipé d'un jack d'entrée C.C.)
Consommation:	20 W (C.A.) 6 W (C.C.)
Dimensions: (L x H x P):	31,5 x 8,8 x 31,5 cm
Poids:	6,5 kg

Platine de lecture

Type:	Entraînement direct à quartz Platine automatique Départ automatique/Entrée automatique Retour automatique Arrêt automatique Audition répétée Sélecteur de vitesse automatique Sélecteur de dimension automatique Pose et relevage lent/rapide (fonction exploratrice à 2 vitesses) Détection de la présence d'un disque
Système d'entraînement:	Entraînement direct
Moteur:	Moteur C.C. sans balai
Groupe de réglage:	Réglage d'accrochage de phase par quartz
Plateau de lecture:	Aluminium moulé sous pression Diamètre 30 cm
Vitesses de rotation:	33-1/3 et 45 t/p.m Sélecteur de vitesse automatique (sélection manuelle possible)
Déviation de la vitesse:	En deçà de ±0,002%
Pleurage et scintillement:	0,012% de valeur efficace* 0,025% de valeur efficace (JIS C5521) ±0,035% de crête (IEC 98A Pondéré)

* Mesuré par l'obtention d'un signal provenant du générateur de fréquences incorporé de l'ensemble du moteur.

Ronflement:	−56 dB (IEC 98A Non pondéré) −78 dB (IEC 98A Pondéré)

Bras de lecture

Type:	Bras de lecture d'alignement linéaire de type à équilibre dynamique avec suspension à la cardan à 4 pivots.
Longueur effective:	105 mm
Angle d'erreur de piste:	En deçà de ±0,1°
Masse réele:	9 g (y compris la celluel pick-up)
Fréquence de résonance:	12 Hz
Moteur d'entraînement du bras de lecture:	Moteur C.C. sans noyau

Cellule pick-up

Type:	Cellule pick-up stéréo à bobine mobile (MC) Type de bobine à enroulement toroïdal jumelé sans noyau
Porte-à-faux:	Tube à bore pur
Amortisseur:	TTDD (Technics Temperature Defense Damper)
Réponse en fréquence:	10 Hz à 60 kHz 10 Hz à 10 kHz ±0,5 dB
Tension de sortie:	0,2 mV à 1 kHz; 5 cm/s., zéro à vitesse latérale de crête (0,56 mV à 1 kHz; 10 cm/s., zéro à vitesse 45° de crête [DIN 45 500])
Séparation de canal:	Plus de 25 dB à 1 kHz Plus de 20 dB à 10 kHz
Equilibrage des canaux:	En deçá de 1 dB à 1 kHz
Résistance C.C.:	30 Ω
Impédance:	30 Ω (Résistance pure)
Elasticité (dynamique):	12 x 10^{-6} cm/dyne à 100 Hz
Angle d'alignement vertical	20°
Plage de la force verticale:	1,25 ± 0,25 gramme (12,5 ± 2,5mN)
Extrémité de la pointe de lecture:	0,2 x 0,7 mil (5 x 18 µm) Forme elliptique Ensemble d'une pointe en diamant
Masse réelle:	0,23 mg
Poids:	6,0 grammes (cellule seule)
Remplacement de la celluel:	EPS-310MC

Section du pré-préamplificateur MC

Ronflement:	−70 dB (IHF A).
Réponse en fréquence:	20 Hz à 20 kHz ±0,5 dB
Niveau de sortie:	2,5 mV
Distorsion globale:	0,02% (connectée à SU-70AII de Technics).

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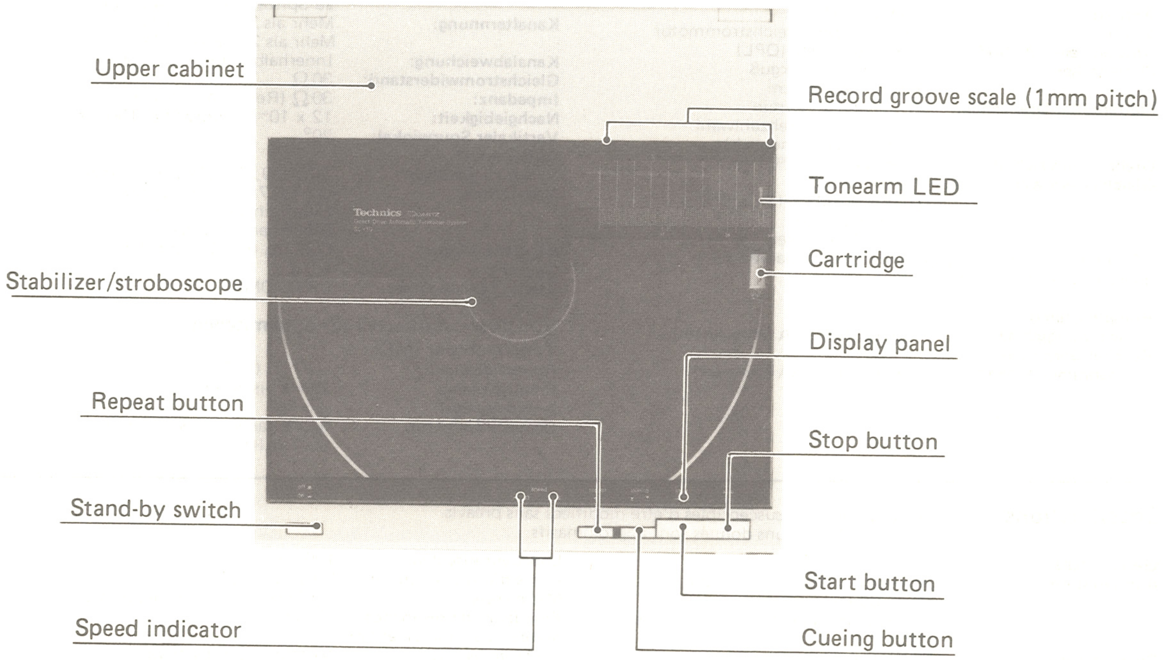
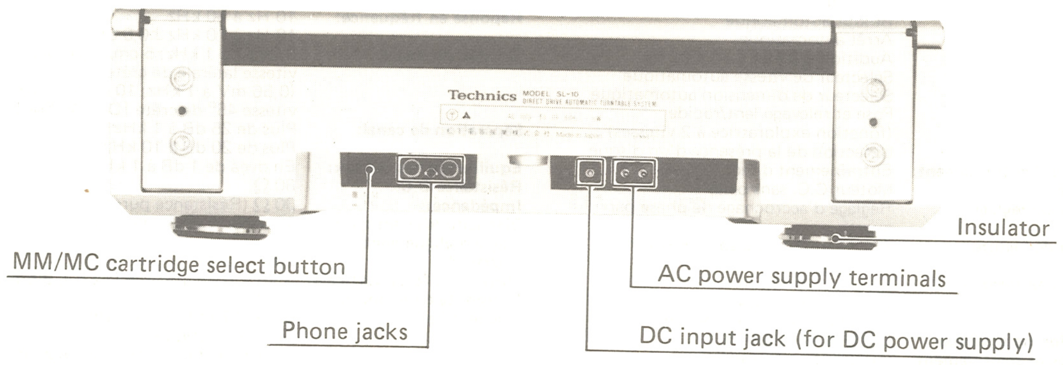
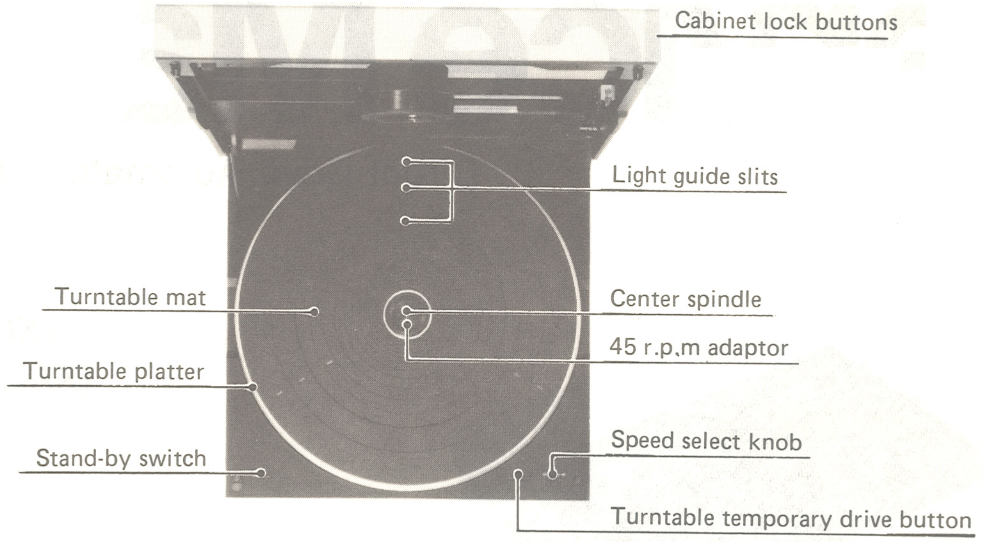
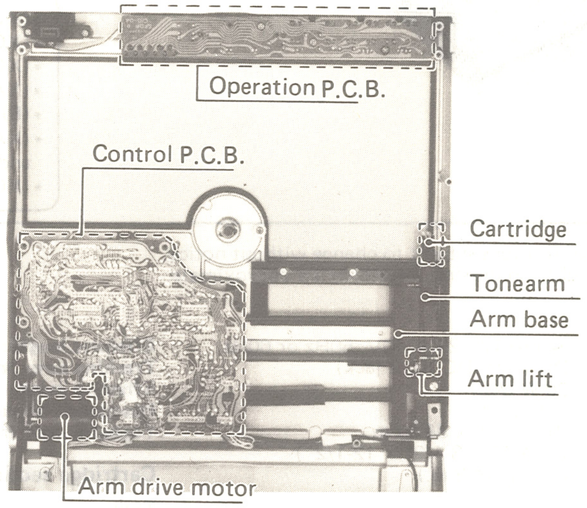
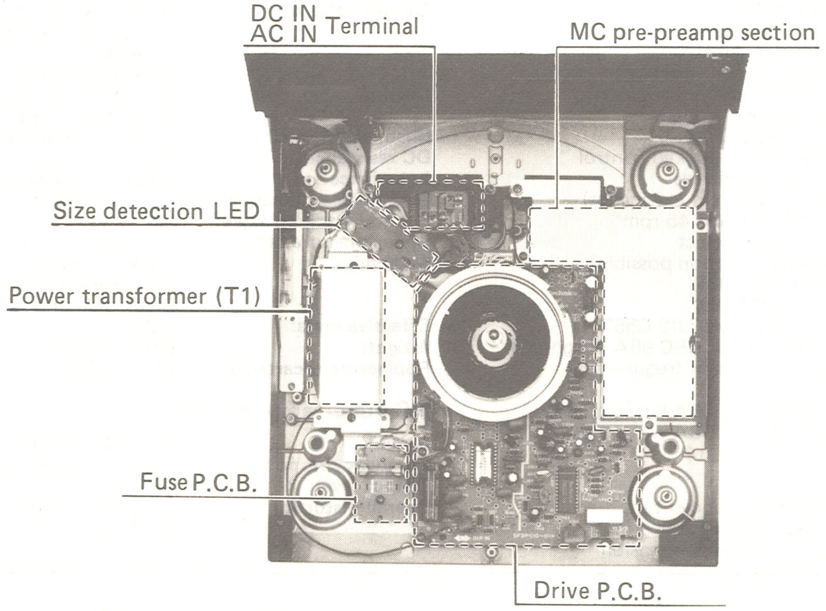
■ LOCATION OF CONTROLS


Upper cabinet
Record groove scale (1mm pitch)
Tonearm LED
Cartridge
Stabilizer/stroboscope
Display panel
Repeat button
Stop button
Stand-by switch
Start button
Speed indicator
Cueing button


Insulator
MM/MC cartridge select button
AC power supply terminals
Phone jacks
DC input jack (for DC power supply)


Cabinet lock buttons
Light guide slits
Turntable mat
Center spindle
45 r.p.m adaptor
Turntable platter
Stand-by switch
Speed select knob
Turntable temporary drive button


Operation P.C.B.
Control P.C.B.
Cartridge
Tonearm
Arm base
Arm lift
Arm drive motor


DC IN
AC IN
Terminal
MC pre-preamp section
Size detection LED
Power transformer (T1)
Fuse P.C.B.
Drive P.C.B.

■ FEATURES

The world's first high-performance DD turntable with the compact dimensions of an LP record jacket.

The SL-10 cabinet is made of die-cast aluminum and divided into upper and lower halves having extremely precise dimensions. The upper half contains the linear tracking tonearm and drive mechanism (with microcomputer and optical sensor) while the lower half contains Technics' original integral rotorplatter DD motor and its drive and servo-control circuitry.

The width and depth of the unit's dimensions are exactly the same as those of a standard LP record jacket, so the turntable takes up minimum space.

Just put on a record and press the start button.

Thanks to the optical sensor and microcomputer, both record size and record speed are detected automatically so all you have to do is press the start button to begin play. At the end of the record, the tonearm automatically rises and returns to the start position.

When there is no record on the turntable, the tonearm does not move, so there is no danger of harming the stylus accidentally.

Complete multi-function control capability.

Besides the simple, basic operating procedure described above, you also have complete manual control over all tonearm and turntable functions.

Dynamic balanced linear tracking tonearm employs optical sensor and groove deflection angle detection for extremely stable and accurate tracking.

The linear tracking tonearm moves across the record surface in the same way as the cutter head used to make the record in the first place. Therefore there is virtually no tracking error or skating force.

Located by the stylus is an optical sensor that detects tracking conditions by means of groove deflection angle. Based on this information, tonearm movement is controlled so as to maintain optimum tracking at all times. Because the tonearm is dynamically balanced, the turntable can be played flat or leaned.

A precision coreless DC motor is used for tonearm drive to assure quiet and accurate control.

The coreless DC motor and slide bearing of minimum friction assure extremely precise tonearm movement.

A 4-point pivot bearing gimbal suspension developed by Technics reduces friction and raises sensitivity while contributing to smooth tracing ability.

Equipped with a high performance MC cartridge employing pure boron pipe cantilever and coreless twin ring coil for excellent mechanical performance characteristics and exceedingly faithful musical reproduction.

This cartridge employs the same pure boron pipe cantilever originally developed by Technics for the 305MC cartridge. Besides this world's first, the cartridge also features coreless twin-ring construction to significantly reduce effective mass while raising output.

Built-in pre-preamp for MC cartridge with convenient MM/MC cartridge select button.

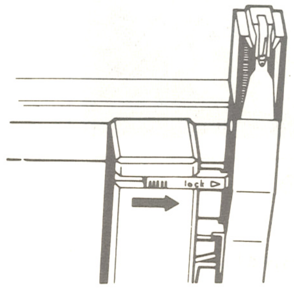
Other advanced features:

- ■ Technics' original integral rotor-platter structure combines motor rotor and platter for more stable performance.
- ■ Full cycle detection FG servo with quartz phase locked control assures unbeatable rotational accuracy.
- ■ Dial scale and tonearm LED indicator on outside of upper cabinet make it easy to check on tonearm position.
- ■ Record stabilizer and stroboscope built-in.
- ■ 45 rpm single-play adaptor is located in turntable platter for pop-up convenience.
- ■ Underside of unit employs damping material to absorb external vibrations and prevent acoustic breakthrough.
- ■ Can be run on either AC or DC (12V) current. DC adaptor optionally available for car battery use.

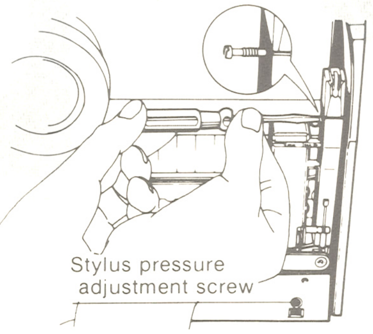
■ DISASSEMBLY INSTRUCTIONS

How to remove the cartridge

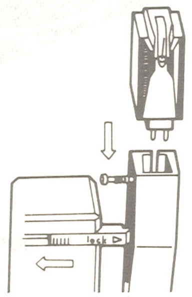
1. Turn off the stand-by switch.
2. Open the upper cabinet all the way.
3. Slide the arm lock over so it locks the tonearm in place. **(See Fig. 1)**
4. Use the accessory screwdriver to unscrew the cartridge. (As shown in the diagram, loosen the screw until the cartridge can be freely removed.) **(See Fig. 2)**
5. Pull of the cartridge. **(See Fig. 3)**



[Fig. 1]



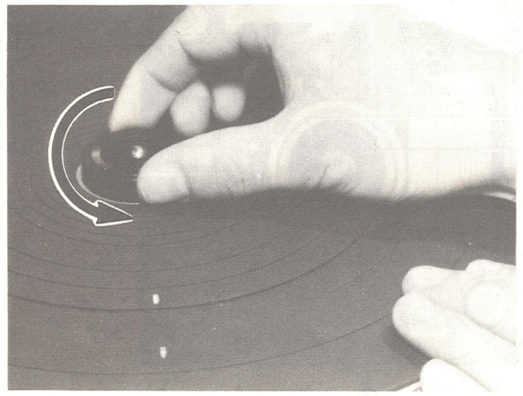
[Fig. 2]



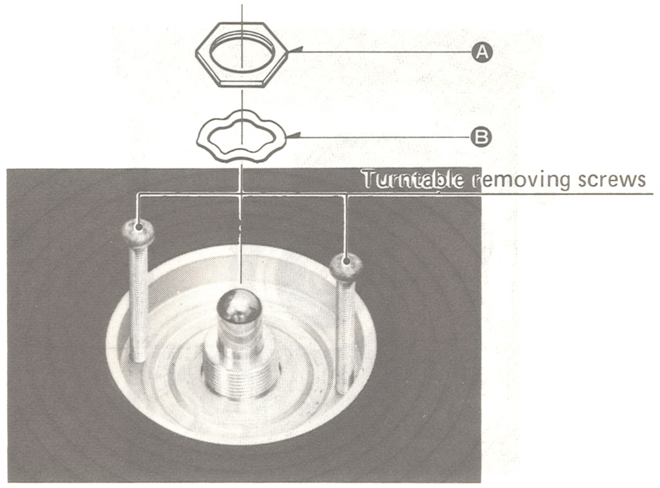
[Fig. 3]

How to remove the turntable

1. Don't rotate the turntable with a hand then remove the 45 Adaptor by turned counterclockwise. **(See Photo 1)**
2. Remove 1 nut Ⓐ and 1 washer Ⓑ of turntable.
3. Install 2 setscrews for center hole of turntable, then glip up can be replaced. **(See Photo 2)**
   Note: Turntable screw is used as long about 30 mm.



[Photo 1]

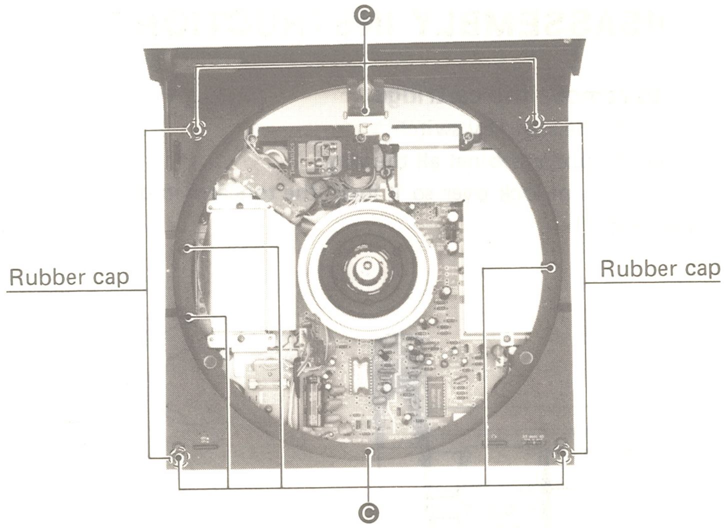


[Photo 2]

How to remove the lower cover

1. Open the upper cabinet, then remove the stay by pulling it out toward you.
2. Remove the turntable.
3. Remove 4 rubber cap and 9 setscrews Ⓒ of the lower cover. The lower cover can be remove. **(See photo 3, 4)**

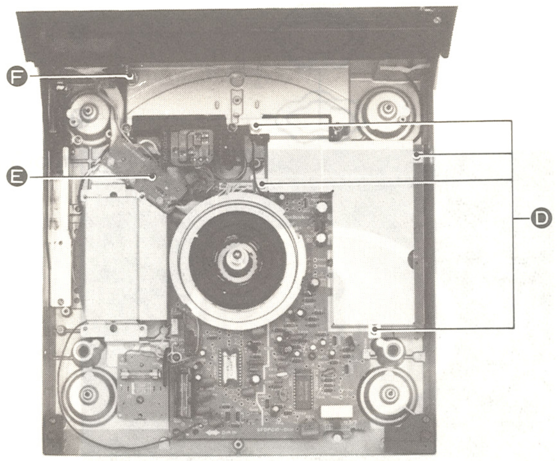
[Photo 3]



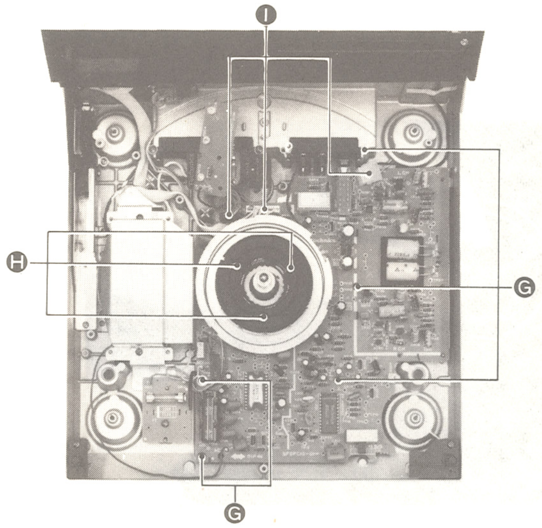
[Photo 4]

How to remove drive P.C.B.

1. Remove the lower cover.
2. Remove 4 setscrews Ⓓ of the shield cover.
3. Remove 1 setscrew Ⓔ of the LED P.C.B. and 1 setscrew Ⓕ of the IC1. **(See Photo 5)**
4. Remove 5 setscrews Ⓖ of the drive P.C.B. and 3 setscrews Ⓗ of the stater cover.
5. Remove 3 connectors Ⓘ then drive P.C.B. can be remove. **(See Photo 6)**



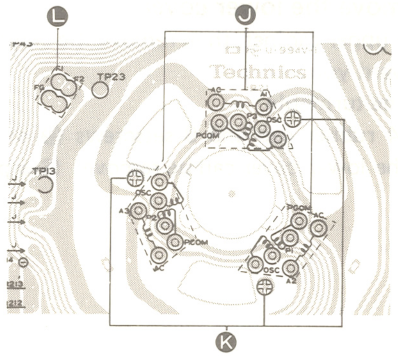
[Photo 5]



[Photo 6]

How to remove stater frame ass'y

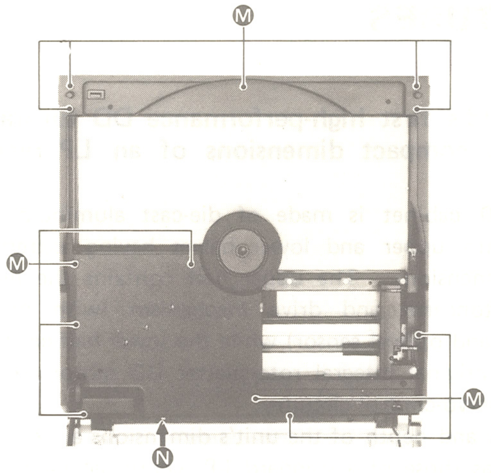
1. Remove the drive P.C.B.
2. Disconnect 18 soldered parts Ⓙ of the stater frame coil and 4 soldered parts Ⓛ of the F.G detector coil. Then remove 3 setscrews Ⓚ of the stater frame coil. The F.G detector coil and stater frame coil can be remove. **(See Fig. 4)**



[Fig. 4]

How to remove the upper cover

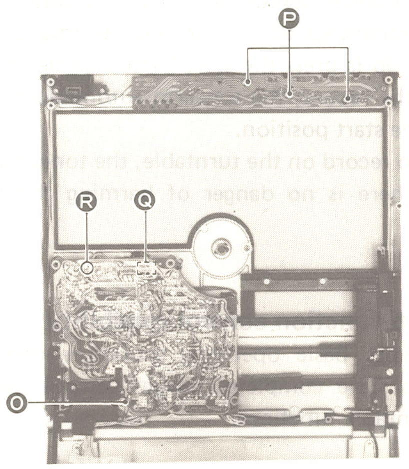
1. Remove the cartridge.
2. Remove the stay.
3. Open the upper cabinet. Remove 12 setscrews Ⓜ of the upper cover.
   Note: Push the cover switch Ⓝ, then remove the upper cover. **(See Photo 7)**



[Photo 7]

How to remove the control P.C.B. and the operation P.C.B.

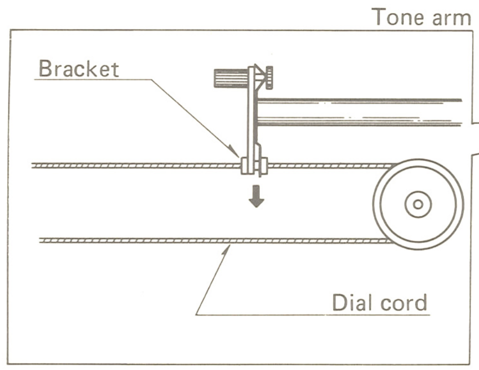
1. Remove the upper cover.
2. Remove 1 setscrew Ⓞ of the control P.C.B. and 3 setscrews Ⓟ of the operation P.C.B.
3. Remove 1 connector Ⓠ of the limit switch and 1 setscrew Ⓡ of the IC405. The control P.C.B. and operation P.C.B. can be remove. **(See Photo 8)**



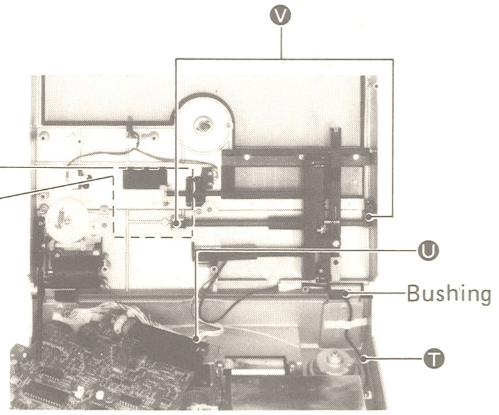
[Photo 8]

How to remove the tone arm

1. Remove the lower cover.
2. Remove the shield cover.
3. Remove 1 connector Ⓣ of the tone arm. **(See Photo 9).**
4. Remove the cartridge.
5. Remove the upper cover.
6. Remove the control P.C.B.
7. Remove 1 connector Ⓤ of the control P.C.B., then remove bushing and remove 1 connector Ⓣ of the control P.C.B.
8. Remove the rope bracket. **(See Fig. 5)**
9. Remove 2 setscrews Ⓥ of the tone arm. **(See Photo 9)**



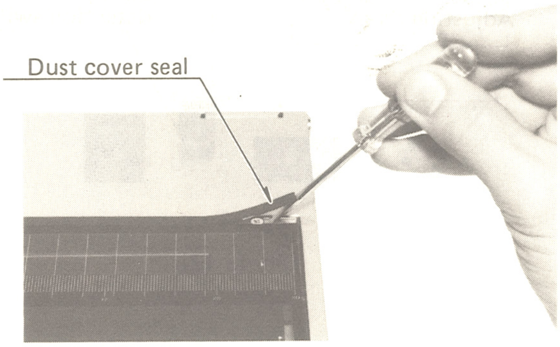
[Fig. 5]



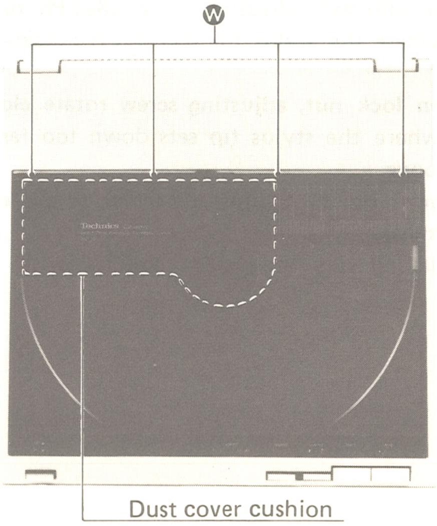
[Photo 9]

How to remove the dust cover

1. Brake the seal using with a screw driver. **(See Photo 10)**
2. Remove 4 setscrews Ⓦ of the dust cover. The dust cover and the dust cover cushion can be remove. **(See Photo 11)**


Dust cover seal

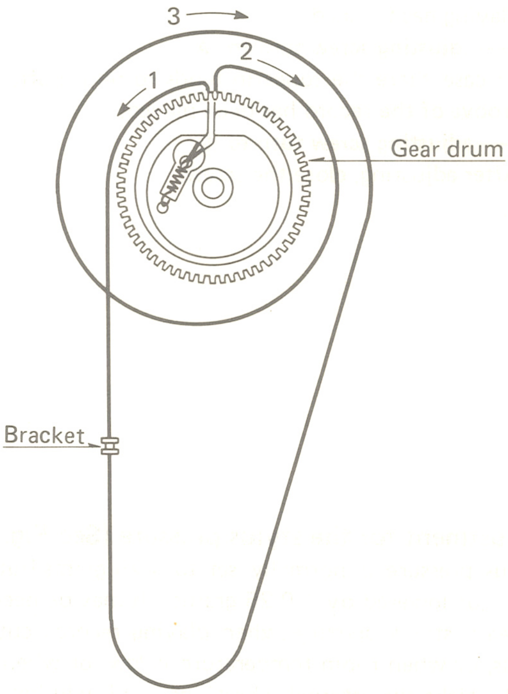
[Photo 10]


Ⓦ
Technics
Dust cover cushion

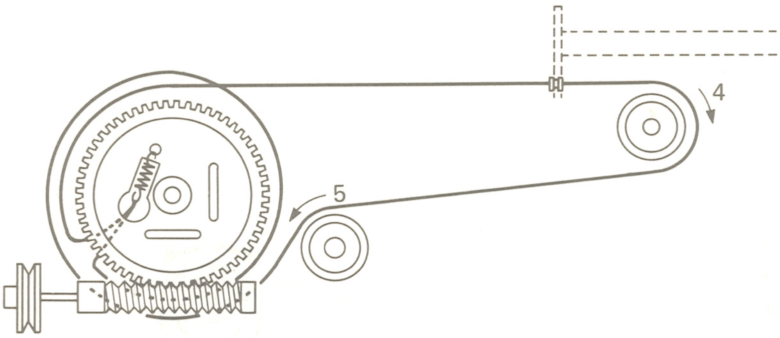
[Photo 11]

How to install the dial cord

1. Install the spring to Gear drum.
2. Direct the cord in the order from 1 to 5. **(See Fig. 6)**
3. Turn the worm Gear, Install the bracket to the arm. **(See Fig. 7)**


3
2
1
Gear drum
Bracket

[Fig. 7]



[Fig. 6]

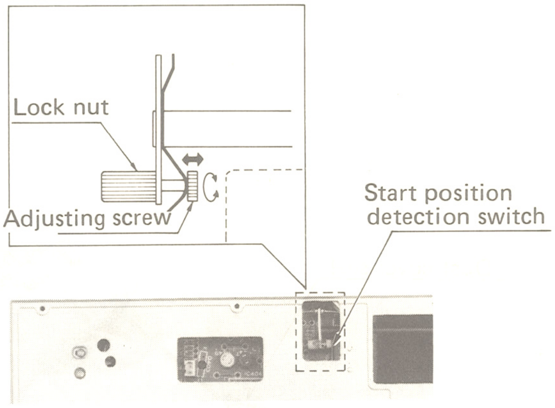
■ ADJUSTMENT

ENGLISH

Adjustment for automatic start position

(Adjustment by 30 cm record)

1. Remove the dust cover.
2. Confirm the arm position (start position)
3. Adjust the auto start adjusting screw. **(See Photo 12)**
   In case where the stylus tip sets down outside of the record.
   ——loosen lock nut, adjusting screw rotate clockwise.
   In case where the stylus tip sets down too far in the record groove.
   ——loosen lock nut, adjusting screw rotate counter-clockwise.
4. After adjusting, close the lock nut and fix it.

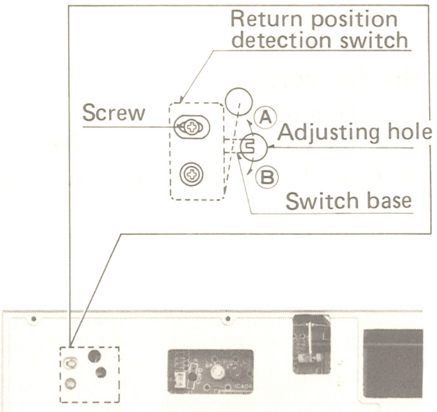

Lock nut
Adjusting screw
Start position detection switch

[Photo 12]

Adjustment for automatic return position

(Adjustment by 17cm record)

1. Remove the dust cover.
2. Adjust the switch position to Ⓐ or Ⓑ using a screw driver. **(See Photo 13)**
   In case where the tonearm tends to return before the playing has finished.
   ——adjusting screw turn to Ⓐ
   In case there the tonearm tends to return after the last groove of the record has been played.
   ——adjusting screw turn to Ⓑ
3. After adjusting, close the screw.

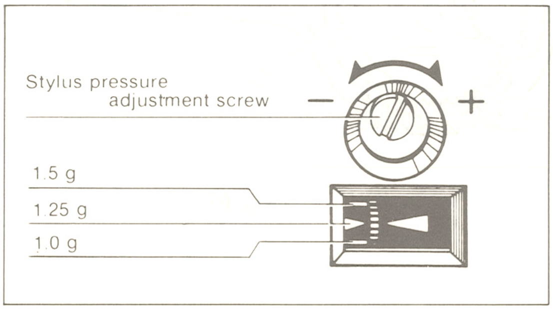

Return position detection switch
Screw
Ⓐ
Adjusting hole
Ⓑ
Switch base

[Photo 13]

Adjustment for the stylus pressure (See Fig. 8)

Stylus pressure is normally set to 1.25 grams but may be raised or lowered by ± 0.25 grams. It may be necessary to increase stylus pressure when playing records cut at high levels, or when room temperature is low, or when the unit easily picks up eaternal vibrations. This will help prevent distortion and groove-skipping. To adjust sylus pressure, turn either way, as shown in the diagram. The screw is coupled to the graduated ring.

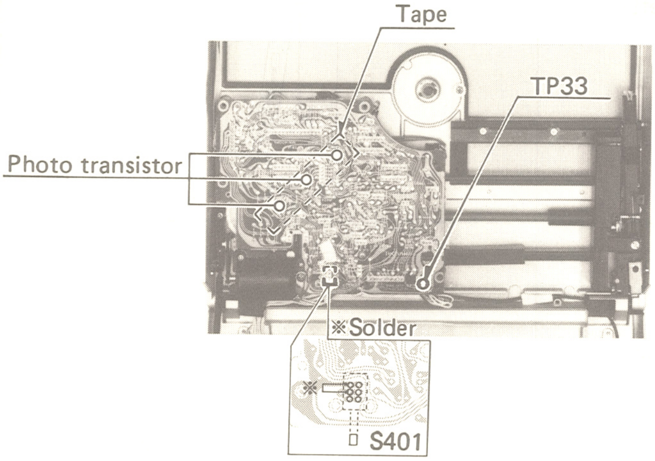
Note: Do not turn the stylus pressure adjustment. Screw further than the set limits (1.5g ~ 1.0g)


Stylus pressure adjustment screw
−
+
1.5 g
1.25 g
1.0 g

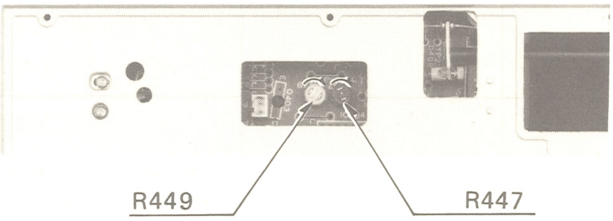
[Fig. 8]

Adjustment for tone arm

- Adjustment point



[Photo 14]



[Photo 15]

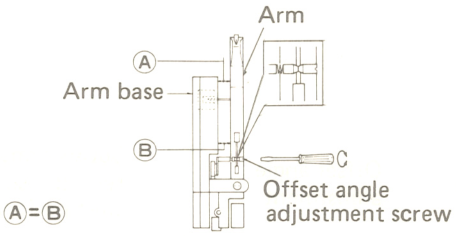
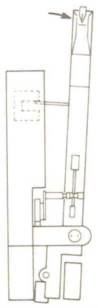
After replacement of tonearm parts, be sure to make the adjustment according to the following procedure.

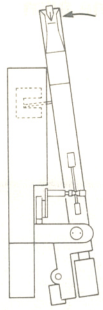
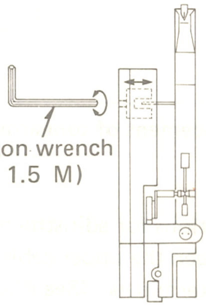
- Preparations for adjustment

1. Fully open the upper cabinet and solder the cover switch (S401) terminals. **(See Photo 14)**
2. With the upper cover opened, set the power switch to "ON" and cover the photo transistor with tape, then turn on the start button.
3. Make sure that the turntable rotates and the arm stops at the 30 cm record start position and the cueing down.
4. Completely turn the semi-fixed volume R447 and R449 clockwise (Temporary adj.)

- Tools and instruments necessary for adjustment

1. Screw driver
2. Hexagon wrench (1.5M)
3. DC VTVM or circuit tester.

Step	Item	Description	Adjusting method
1	Mechanical center adjustment of arm	Fix the arm in V-groove of cueing lever, and then turn the adjusting screw of cueing lever so that the arm base is paralleled with the arm. Note: Check the parallelism visually.	 Arm Ⓐ Arm base Ⓑ C Offset angle adjustment screw Ⓐ=Ⓑ
2	Maximum sensitivity adjustment of servo circuit	After finishing the preparatory steps 1 ~ 4. connect the DC VTVM (or circuit tester) between **TP33** and earth. Fully swing the arm to the right by hand, then read the voltage. (*1) • About 7.6V	

3	Minimum sensitivity adjustment of servo circuit	Fully swing the arm to the left by hand, then read the voltage. (*2) About 0.4V	
4	Electrical center adjustment of arm	Fix the arm at the mechanical center, and then adjust the hexagonal screw to obtain the central voltage of the difference between *1 and *2. Turning the screw clockwise . . . . .**decreases the voltage** Turning it counterclockwise . . . . **increases the voltage** The voltage must be adjusted as follows $\frac{(\overset{*1}{7.6\text{ V}} - \overset{*2}{0.4\text{V}})}{2} + 0.4\text{V} = 4.0\text{V}$ Note: *1 and *2 vary depending on the set.	
5	Servo sensitivity adjustment	After the above adjustment, connect the 2-pin connector between **TP30** and earth in the adjusting hole	Turn **R449** counter clockwise so that the VTVM (or circuit tester) indicates **0.72V.**
6	Offset angle adjustment	Subsequently, put a 1 mm pitch record disc on the turntable to start performance.	Turn **R447** counterclockwise so that the VTVM (or circuit tester) indicates **0.6V.**

JUSTIERUNG (Tonarm) DEUTSCH

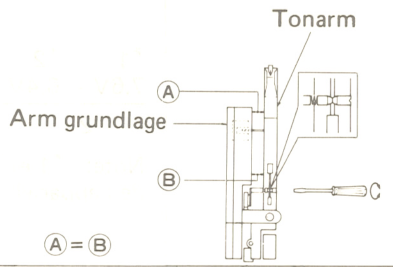
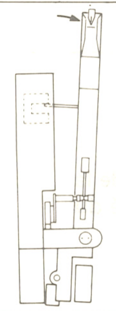
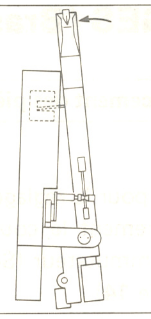
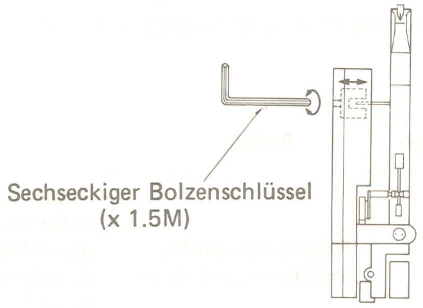
Nehmen Sie die Neueinstellungen nach Auswechseln des Tonarms gemäß den folgenden Vorgängen vor.

- Varbereitungen für Einstellungen

1. Öffnen Sie die Oberabdeckung völling, und verlöten Sie die Ausgangsanschlüsse des Abdeckungsschalters (S401) um diesen Schalter eingeschaltet zu halten und normalen Betrieb zu ermöglichen. **(Siehe Foto 14)**
2. Stellen Sie den Netzschalter bei geöffneter Abdeckung auf die "ON" (EIN) Position, decken Sie die Photodiode mit Tape ab und drücken Sie den Startknopf.
3. Versichern Sie sich, daß sich der Plattenteller dreht, der Tonarm au der Anfangsposition für 30 cm Schallplatten anhält und der Ablifthebei sich herunterbewegt.
4. Drehen Sie die halbeinstellbaren Widerstände R447 und R449 bis zum Anschlag im Uhrzeigersim. (Vorläufige Einstellung)

- Notwendige Werkzeuge und Geräte für die Einstellungvorgänge

1. Schlitzschraubenzieher (–)
2. Sechseckiger Bolzenschlüssel (1.5M)
3. Gleichstromvoltmeter oder Tester

Schritt	Einstellgegenstand	Beschreibung	Einstellmethode
1	Mechanische Mitteleinstellung des Tonarms	Legen Sie den Tonarm in die V-Rille des Ablifthebels ein, und dre hen Sie die Einstellschraube des Ablifthebels bis die Armgrundlage gleichlaufend (parallel) mit dem Tonarm eingestellt ist. **Anmerkung**: Führen Sie Sichtprüfungen der Parallelität aus.	
2	Einstellung auf maximale Empfindlichkeit des Servo-Kreises	Verbinden Sie das Gleichstromvoltmeter (order Tester) zwischen **TP33** und Erde, nachdem die vorbereitenden Schritte 1 bis 4 ausgeführt worden sind. (*1) Ungefähr 7.6 Volt.	
3	Einstellung auf minimale Empfindlichkeit des Servo-Kreises	Bewegen Sie den Tonarm mit der Hand völlig nach Rechts (bis zum Anschlag), und lesen Sie dann die angezeigte Spannung ab. (*2) ·Ungefähr 0.4Volt	
4	Elektrische Mitteleinstellung des Tonarms	Bringen Sie den Tonarm auf Seine mechanische Mittelposition, und adjustieren Sie die Sechseckige Schraube um eine Mittelspannung Zwischen den Unterschieden von *1 und *2 zu erhalten. Drehen der Schraube im Uhrzeigersinn . . . . .**verringert die Spannung.** Drehen der Schraube entgegen dem Uhrzeigersinn . . . . .**erhöht die Spannung.** Die Spannung muß wie folgt eingestellt werden. $\frac{\overset{*1}{7{,}6V} - \overset{*2}{0{,}4V}}{2} + 0{,}4V = 4{,}0$ Volt Anmarkung: *1 und *2 sind, vom Gerätetyp abhängig, unterschied lich.	
5	Einstellung der Servo-Empfindlichkeit	Nach Austührung der vorstehenden Einstellungen, verbinden Sie das 2-Stift Verbindungsstück mit **TP30** und Erde im Adjustierloch.	Drehen Sie **R449** entgegen dem Uhrzeigersinn um die, auf dem Röhren-voltmeter (order tester) angezeigte Spannung, auf **0,72V** kommen zu lassen
6	Einstellung des Reibungswinkels	Legen Sie eine 1-mm Abstimmschallplatte auf den Plattenteller um mit dem Abspielvorgang zu beginnen.	Drehen Sie den Wiederstand **R447** entgegen dem Uhrzeigersinn um auf dem Röhrevoltmeter (order tester) **0,6V.** anzeigen zu lassen.

■ REGLAGES (Bras acoustique) FRANCAIS

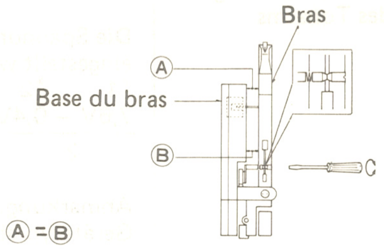
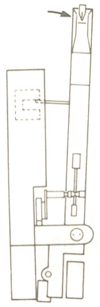
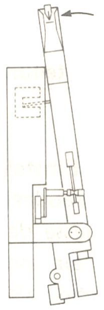
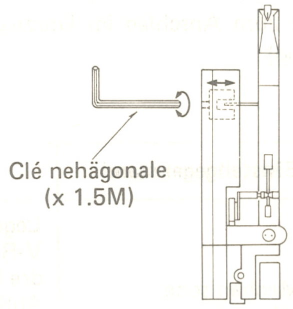
Après le remplacement des pièces du bras acoustique, S'assurer d'effectuer le réglage en fonction du procdé suivant.

- Préparations pour le réglage

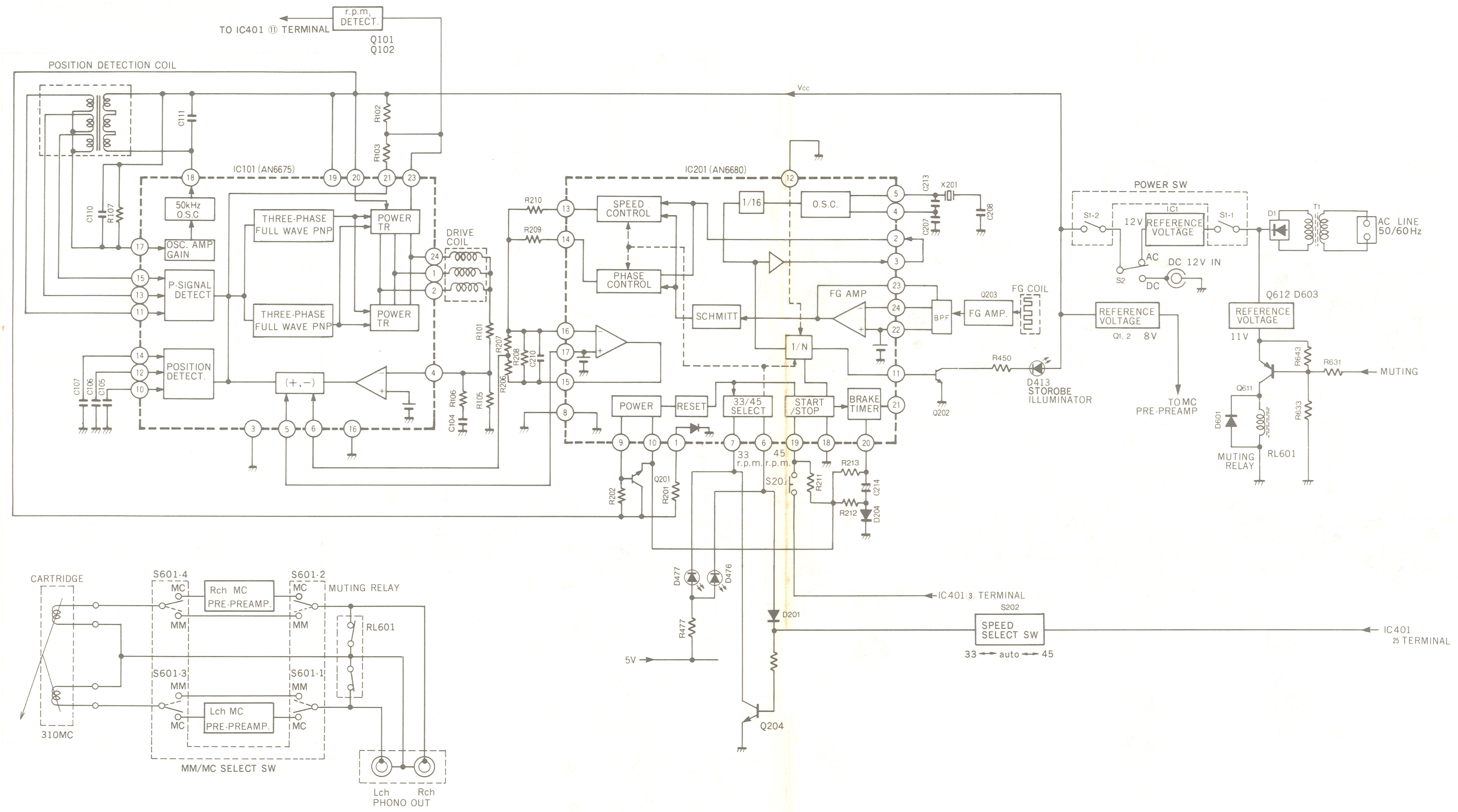
1. Ouvrir entièrement le couvercle supérieur et souder les bornes du commutateur (S401) du couvercle **(Photographie 14)**
2. Quand le couvercle supérieur est ouvert, placer le commutateur d'alimentation sur la position "ON" et couvrir la diode photoélectrique à l'aide de Une vande adhésive pur allumer le bouton de départ.
3. S'assurer que le plateau tourne et que le bras s'arrête sur la position de départ d'un disque de 33 tours et que le levier de mise en pile se baisse.
4. Tourner entièrement à droite les R447 et R449 semi-fixes de volume. (Réglage provisoire).

- Outils et appareils nécessdires au réglage

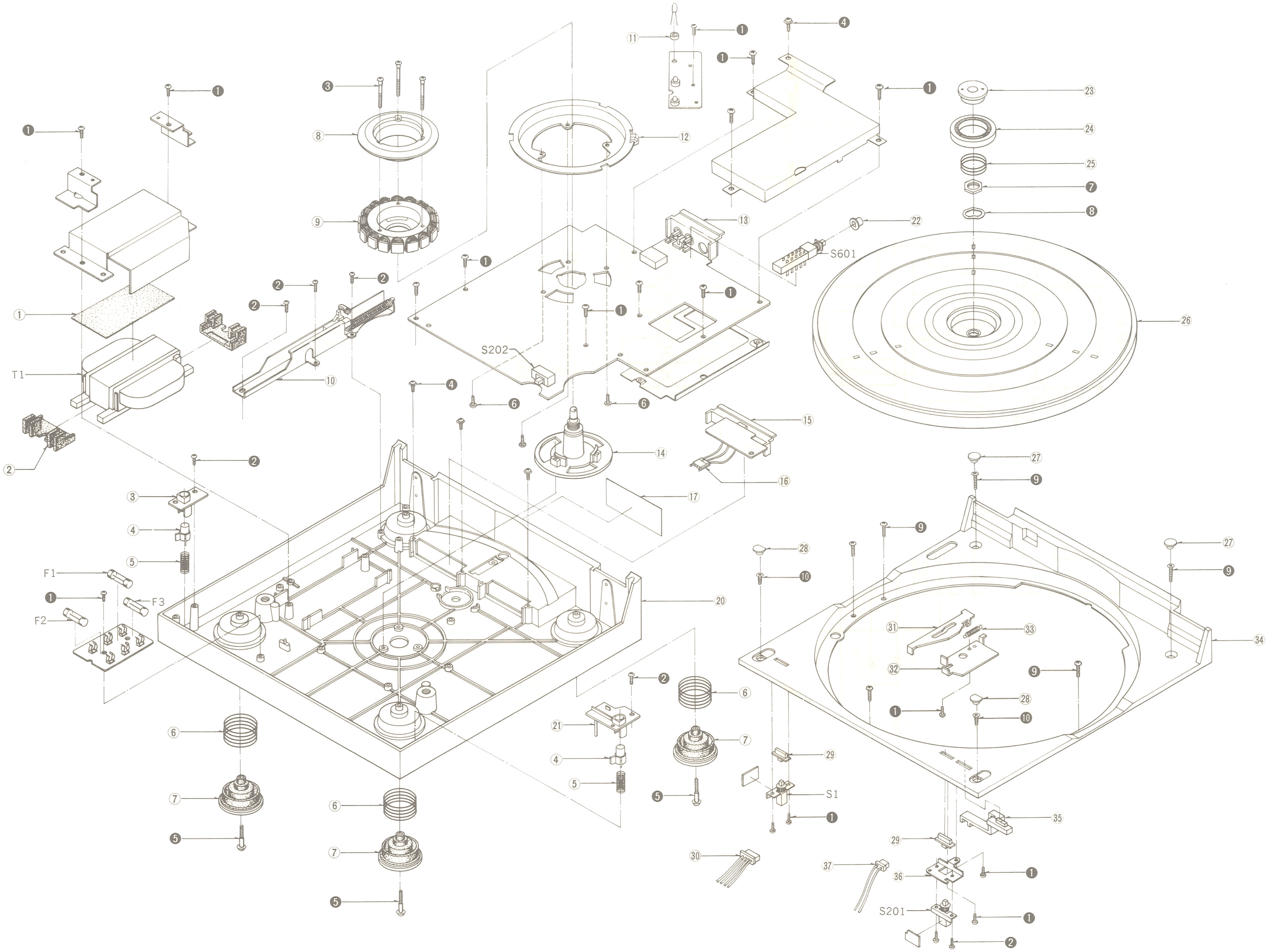
1. Tournevis à tête palte
2. Clé hexagonale (1.5 M)
3. DC VTVM ou testeur

Etape	Article	Description	Méthode de réglage
1	Réglage du centre méchanique du bras	Fixer le bras dans le sillon en V du levier de mise en pile et tourner la vis de véglage du levier de mise en pile de telle sorte que la bras du bras soit paralléle au bras. Note: Vérifier le parallélism à l'oeil.	
2	Réglage de la sensibilite maximale du circuit servo	Après la fin des étapes préparatoires 1 à 4, brancher le DC VTVM (ou le testeur) entre **TP33** et la terre. Porter le bras entièrement à droite à la main, et lire la tension. (*1) •Environ 7.6V	
3	Réglage de ls sensibilite minimal du circuit servo	Porter le bras à gauche à la tension. (*2) •Environ 0.4V	
4	Réglage du centre électrique du bras	Placer le bras au centre mécanique et régler la vis à tête hexanonale pour obtenir la tension centrale de la différence entre *1 et *2 **Tourner la vis de réglage à doite pour réduire la tension.** **Tourner la vis de réglage à gauche pour augmenter la tension.** La tension doit être réglée de la façon suivante. $\frac{\overset{*1}{7.6V} - \overset{*2}{0.4V}}{2} + 0.4V = 4.0V$ Note: *1 et *2 varient en fonction de l'appariel.	
5	Réglage de la sensibilité du servo	Après réglage ci-dessus, brancher le connecteur à deux broches entre **TP30** et la terre dans le trou de réglage.	Tourner la **R449** à gauche de telle sorte que le VTVM (ou le testeur) indique **0.72V.**
6	Réglage de l'angle de compensation	Placer un disque d'un pas de 1 mm sur le plateau pour démarrer la lecture.	Tourner la **R447** à gauche de telle sorte que le VTVM (ou le testeur) indique **0,6V.**

■ BLOCK DIAGRAM


TO IC401 ⑪ TERMINAL
r.p.m. DETECT.
Q101
Q102
POSITION DETECTION COIL
Vcc
C111
R102
R103
IC101 (AN6675)
C110
R107
50kHz O.S.C
OSC. AMP GAIN
P-SIGNAL DETECT
POSITION DETECT.
C107
C106
C105
THREE-PHASE FULL WAVE PNP
THREE-PHASE FULL WAVE PNP
POWER TR
POWER TR
(+, −)
DRIVE COIL
R101
R106
R105
C104
R210
R209
R207
R208
R206
C210
IC201 (AN6680)
SPEED CONTROL
PHASE CONTROL
1/16
O.S.C.
C213
X201
C207
C208
SCHMITT
FG AMP
BPF
FG AMP.
Q203
FG COIL
1/N
POWER
RESET
33/45 SELECT
START /STOP
BRAKE TIMER
Q201
R202
R201
33 r.p.m.
45 r.p.m.
S201
R211
R213
C214
R212
D204
Q202
R450
D413 STOROBE ILLUMINATOR
D477
D476
R477
5V
D201
Q204
IC401 ③ TERMINAL
S202
SPEED SELECT SW
33 ⟷ auto ⟷ 45
IC401 ㉕ TERMINAL
POWER SW
S1-2
12V
IC1
REFERENCE VOLTAGE
S1-1
D1
T1
AC LINE 50/60Hz
S2
AC
DC
DC 12V IN
REFERENCE VOLTAGE
Q1, 2 8V
TO MC PRE-PREAMP
Q612 D603
REFERENCE VOLTAGE
11V
R643
R631
MUTING
Q611
D601
RL601
R633
MUTING RELAY
CARTRIDGE
310MC
S601-4
MC
MM
Rch MC PRE-PREAMP.
S601-2
MC
MM
MUTING RELAY
RL601
S601-3
MM
MC
Lch MC PRE-PREAMP.
S601-1
MM
MC
MM/MC SELECT SW
Lch
Rch
PHONO OUT

■ EXPODED VIEW



■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.

2. ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
		CABINET and CHASSIS PARTS	
1		SFGCC10-09	Rubber, Power Transformer
2		SFGCC10-04	Rubber, Power Transformer
3		SFUMC10-42	Plate, Power Switch
4		SFUMC10-36	Shutter
5		SFQAC10-05	Spring
6		SFQC320-01	Spring, Insulator
7		SFGAC10-02E	Insulator
8		SFMGQ20-01	Cover, Stater Frme Ass'y
9		SFMG520-31A	Stater Frame Coil
10		SFASC10-01A	Dumper
11		SFUM015-11	Spacer, LED
12		SFMZ172-01E	FG Detector Coil Ass'y
13		SFDJC10-01	Terminal Plate
14		SFMZC10-01A	Stater Frame
15	⚠	SFUMC10X01R	Terminal Plate
15 [XAL, XGF]	⚠	SFUMC10-26R	Terminal Plate
16		SFDJC10-04E	Connector, 3P
17 [XA]		SFNNC10X01	Name Plate
17 [XAL, XGE]		SFNNC10G01	Name Plate
17 [E]		SFNNC10S01	Name Plate
17 [XG]		SFNNC10N01	Name Plate
17 [XGF, XGB]		SFNNC10J01	Name Plate
20		SFACC10-01	Cabinet
21		SFUMC10-41	Plate, Speed Selector Switch
22		SFKTC10-05	Knob
23		SFUMC10-02	Supporter, 45 Adaptor
24		SFUMC10-01	45 Adaptor
25		SFQAC10-01	Spring, 45 Adaptor
26		SFTEC10-01A	Turntable
27		SFGKC10-01	Rubber, Cap (A)
28		SFGKC10-02	Rubber, Cap (B)
29		SFKTC10-04	Knob, Power Switch and Cleaner
30		SFDJC10-05E	Connector, 4P
31		SFUMC10-47	Shutter
32		SFUPC10-14	Supporter, Shutter
33		SFQH910-11	Spring, Shutter
34		SFUMC10X02	Cover, Unit
35		SFKTC10-07	Knob, Speed Select
36		SFUPC10-20	Plate, Cleaner Switch
37		SFDJC10-03E	Connector, 2P
40		SFKDC10-01E	Supporter, Record
41		SFUMC10-11	Cover, Lid
42		SFKTC10-06	Knob, Lock
43		SFQA829-2	Spring, Lock Knob
44		SFUMC10-28	Guide, Lock
45		SFUMC10-08E	Supporter, Record
46		SFUMC10-44	Spacer, LED (B)
47		SFUMC10-23	Plate, Operation Knob
48		SFUMC10-10E	Plate, Operation Knob
49		SFUMC10-43	Spacer, LED (A)
50		SFDJC10-06E	Connector, 11P
51		SFQAC10-02	Spring, Record Supporter
52		SFUMC10-17	Cover, Lamp
53		SFUPC10-06	Supporter, Guide Rail (A)
54		SFXJC10-06	Guide Rail
55		SFUMC10-30	Cover, Guide Rail
56		SFACC10-02E	Cabinet, Lid

Ref. No.		Part No.	Part Name & Description
57		SFUMC10-31	Supporter, Power Switch
58		SFUMC10-24	Plate, Power Switch
59		SFQAC10-06	Spring, Power Switch
60		SFKTC10-01	Knob, Power Siwtch
61		SFUMC10-09	Supporter, Power Siwtch
62		SFGCC10-03	Cushion, Dust Cover
63		SFADC10X01	Dust Cover
64		SFUMC10-35	Bushing (R)
65		SFXWC10-03	Spacer
66		SFUPC10-05	Supporter, Guide Rail (B)
67		SFUPC10-23A	Plate, Pulley
68		SFDJC10-02E	Connector, 4P
69		SFUPC10-01	Plate, Return Switch
70		SFUMC10-34	Bushing (L)
71		SFASC10-02A	Stay Ass'y
72		SFGCC10-02	Cushion, Dust Cover (A)
73		SFKKC10-01	Supporter, Dust Cover
74		SFUMC10-05	Drum, Arm Drive
75		SFUPC10-02A	Plate, Arm Drive
76		SFGBC10-01	Belt, Arm Drive
77		SFUMC10-39	Holder, Lmap
78		SFUMC10-48	Holder, LED
79		SFUMC10-18	Cover, Wire
80		SFDJ10-07E	Connector, 10P
81		SFUMC10-06	Cover, Motor
82		SFGCC10-01	Rubber, Motor
83		SFMHC10-01E	Motor, Arm Drive
84		SFUZC10-01E	Lope

TONE ARM PARTS

90		SFPAM01001A	Tone Arm
91		EPS-310MC	Cartridge
92		SFDNC10-01	Pointer
93		SFPKD01001E	Arm Base
94		SFUPC10-16A	Lift Ass'y
95		SFQSC10-01	Spring, Lift
96		SFKTC10-08	Knob, Lock
97		SFQPC10-02	Spacer, Lock Knob
98		SFUMC10-38	Supporter, Lock Knob
99		SFQPC10-01	Spacer, Operation
100		SFPKD01002A	Cover, Arm Base
101		SFDPC10-06	Plate, Arm
102		SFDZC10-01E	Plunge, Ass'y
103		SFDJC10-08E	Connector, Arm
104		SFDHC10-01E	Connector, Phono

SCREWS, WASHERS and CIRCLIPS

❶		**XTV3+8BFN**	Screw
❷		**XTN3+6B**	Screw
❸		SFXGC10-03	Screw
❹		SFPEV17202	Screw
❺		SFXGQ20-01	Screw
❻		**XTN26+6B**	Screw
❼		**XNS12**	Nut
❽		SFXWC10-01	Washer
❾		**XTN3+20BFZ**	Screw
❿		**XTN3+10BFZ**	Screw
⓫		**XTN3+8BFZ**	Screw
⓬		**XSN3+6**	Screw
⓭		**XWA3B**	Washer
⓯		SFXGC10-05	Screw
⓰		SFXGC10-02	Screw
⓱		**XTN3+12B**	Screw
⓲		XTS26+5JFC	Screw
⓳		**XTV3+6BFN**	Screw
㉑		SFXWC10-04	Washer
㉒		XYN23+C10BN	Screw
㉓		XYN23+C12BN	Screw
㉔		**XTB3+6BFN**	Screw
㉖		**XUC3FT**	Circlip
㉗		SFXW551D2	Wahser
㉘		**XWC3B**	Washer
㉙		SFPEV01001	Screw
㉚		XYN2+C5FZ	Screw
㉛		**XSN2+4BV**	Screw
㉜		**XWE2BW**	Washer
㉝		**XSN3+6BVS**	Screw
㉞		**XWA3BFZ**	Washer
㉟		**XTN2+4B**	Screw
㊱		XXA3D4FZ	Screw

ACCESSORIES

A1 [XA, XAL, XG, XGF, XGB]		SFNUC10X01	Instruction Book
A1 [XGE]		SFNUC10G01	Instruction Book
A1 [E]		SFNUC10S01	Instruction Book
A2 [XA] only		SFDKI19118	2P Plug
A3		SFCZB30001	Brush
A4		SFCFB20502	Screw Driver
A5 [XA, E, XG, XGF, XGB]	⚠	RJA20Z	AC Cord
A5 [XAL]	⚠	RJA26Z	AC Cord
A5 [XGE]	⚠	RJA43Z	AC Cord
A6		SFWZC10M01	Sheet, for 25.30cm Record
A7		SFWZC10M02	Sheet, for 17cm Record
A8		SFDHC10-02	Phono Cord

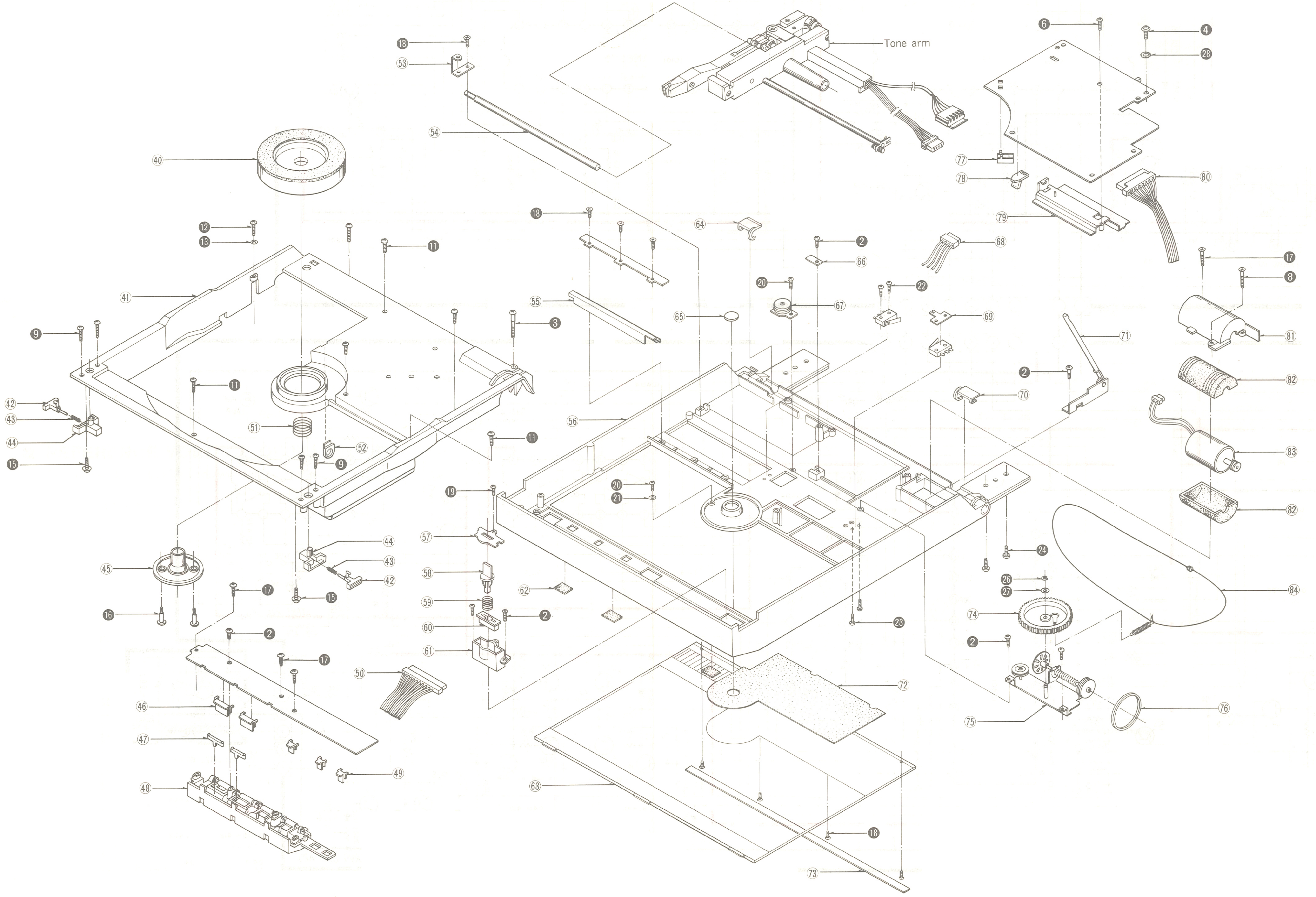
PACKINGS

P1		SFHPC10M02	Carton, Outer
P1 [XGF] only		SFHPC10C02	Carton, Outer
P2		SFHPC10-01	Carton, Inner
P2 [XGF] only		SFHPC10C01	Carton, Inner
P3		SFHHC10-01	Pad, Unit
P4		SFHSC10-03	Spacer, Corner (A)
P5		SFHSC10-04	Spacer, Corner (B)
P6		SFHSC10-02	Spacer, Arm
P7		SFHZC10-03	Sheet, Arm Spacer
P8		SFHSC10-01	Spacer, Turntable
P9		XSN4D20FYBS	Screw
P10		XWE4D8BW	Washer
P11		SFYF45A50	Polyethylene Bag, Unit
P12		SPP189	Polyethylene Bag, Cord
P13		SPB1083	Polyethylene Bag, Accessory
P14		SFHZC10-01	Handle

Areas

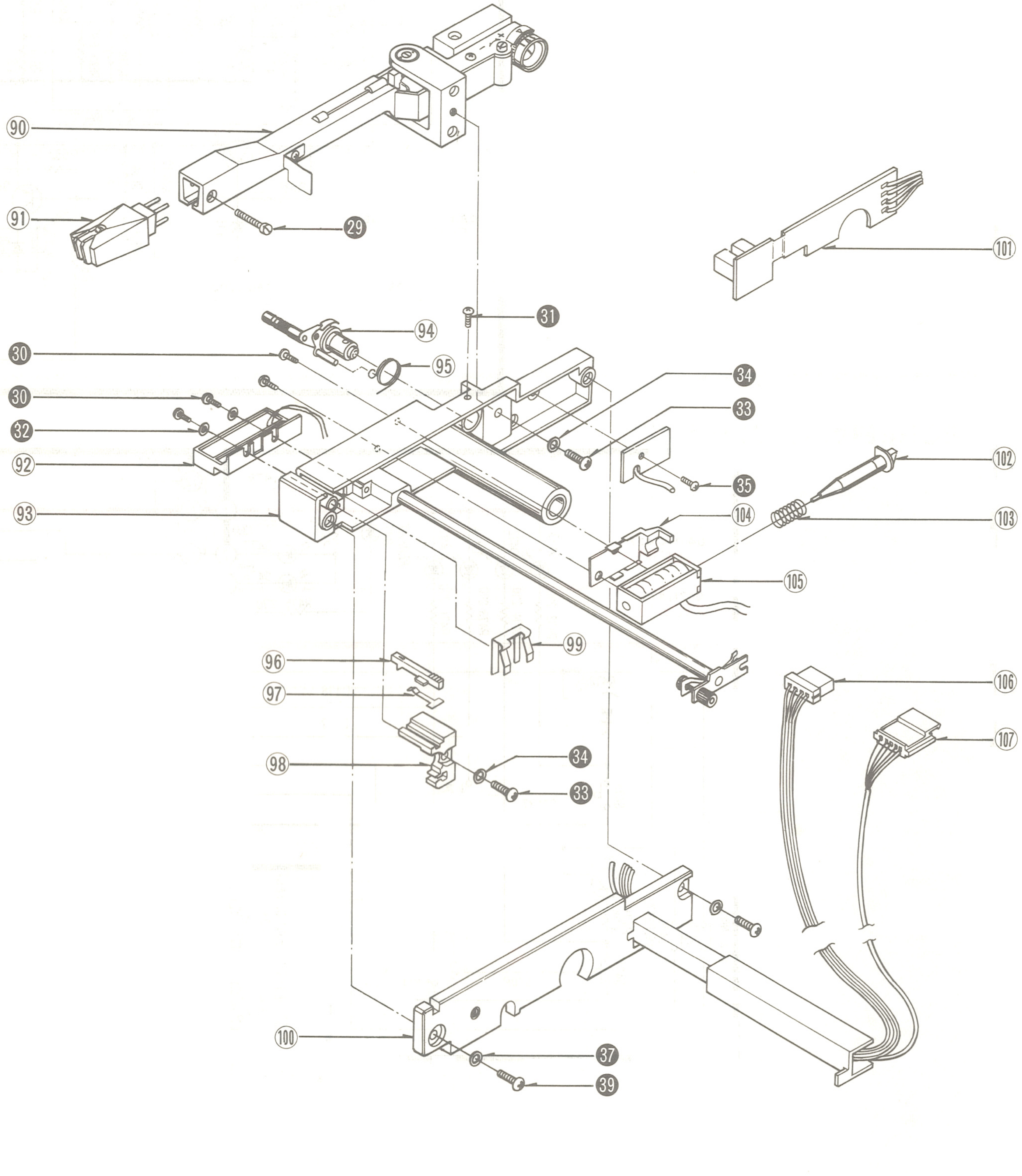
* (XA) is available in Asia, Latin America, Middle East and Africa.
* (XAL) is available in Australia.
* (XG) is available in European.
* (XGF) is available in France.
* (XGB) is available in Belugium.
* (XGE) is available in United Kingdom.
* (E) is available in Scandinavia.

■ EXPLODED VIEW

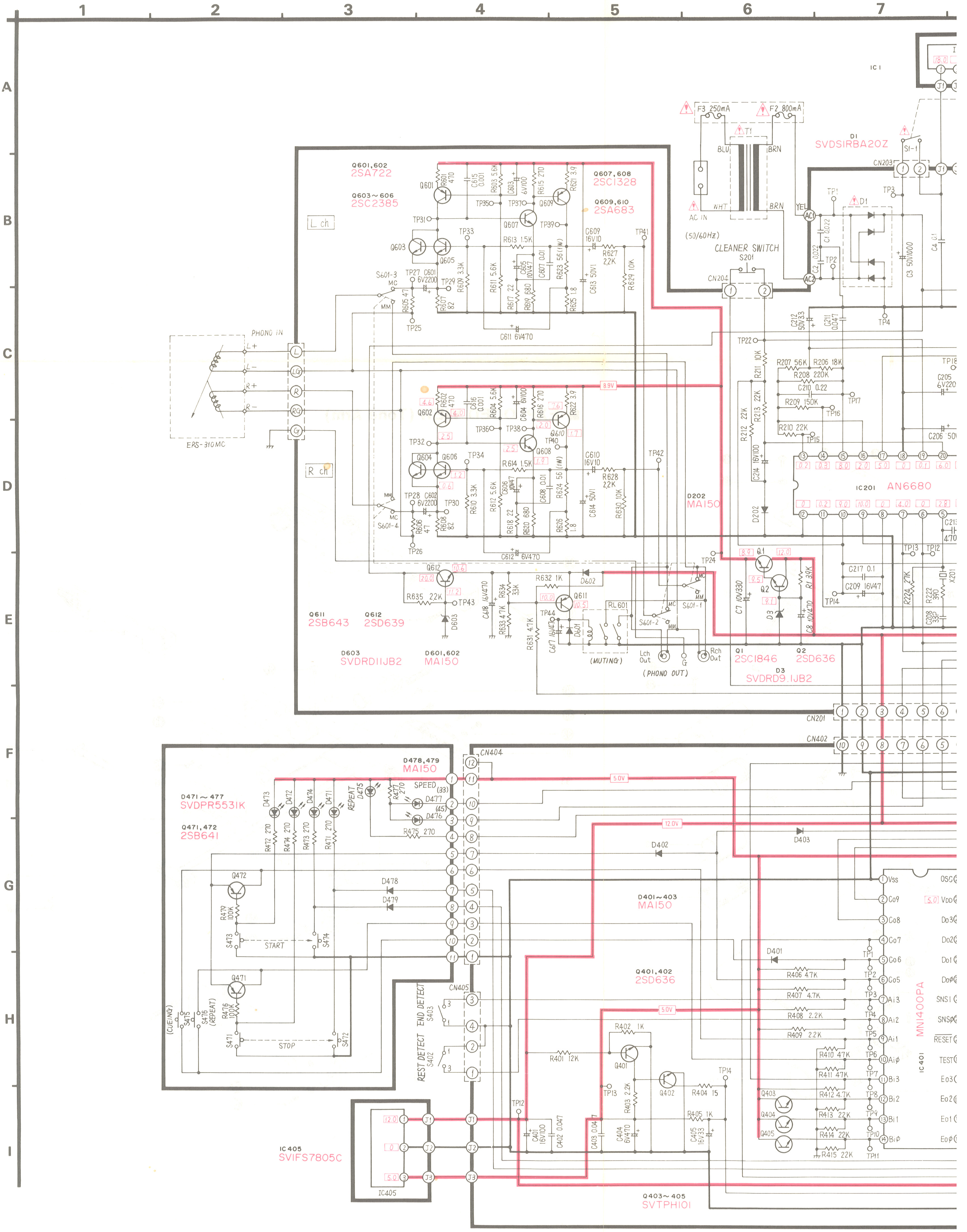


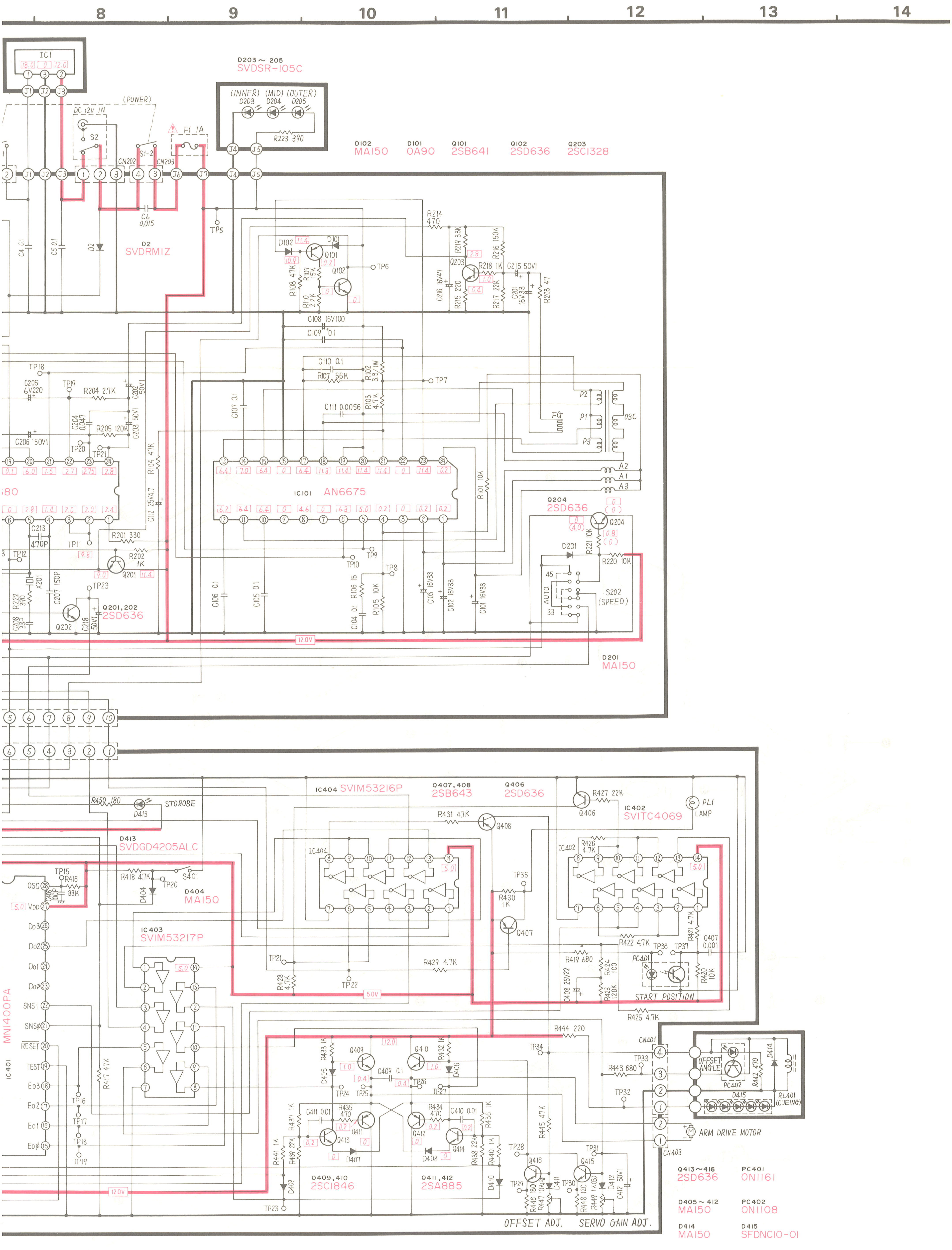
18
53
54
40
Tone arm
6
4
28
77
78
80
79
18
64
2
66
68
17
8
12
13
11
41
9
3
55
65
20
67
22
69
71
81
2
70
82
42
43
44
15
11
51
52
9
56
11
83
20
21
19
82
24
57
44
43
45
42
58
26
27
62
17
15
84
59
16
2
60
2
74
23
2
61
17
50
72
76
46
75
47
49
48
63
18
73

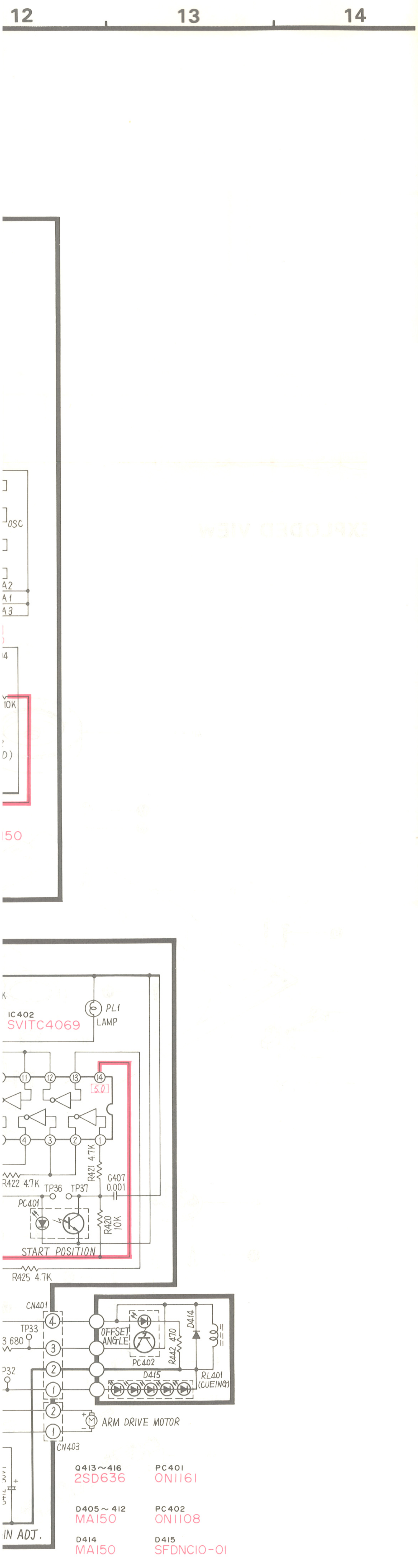
■ EXPLODED VIEW (Tone Arm)


90
91
29
101
31
94
30
95
34
30
33
32
92
102
35
93
104
103
105
99
96
106
97
107
34
98
33
100
37
39

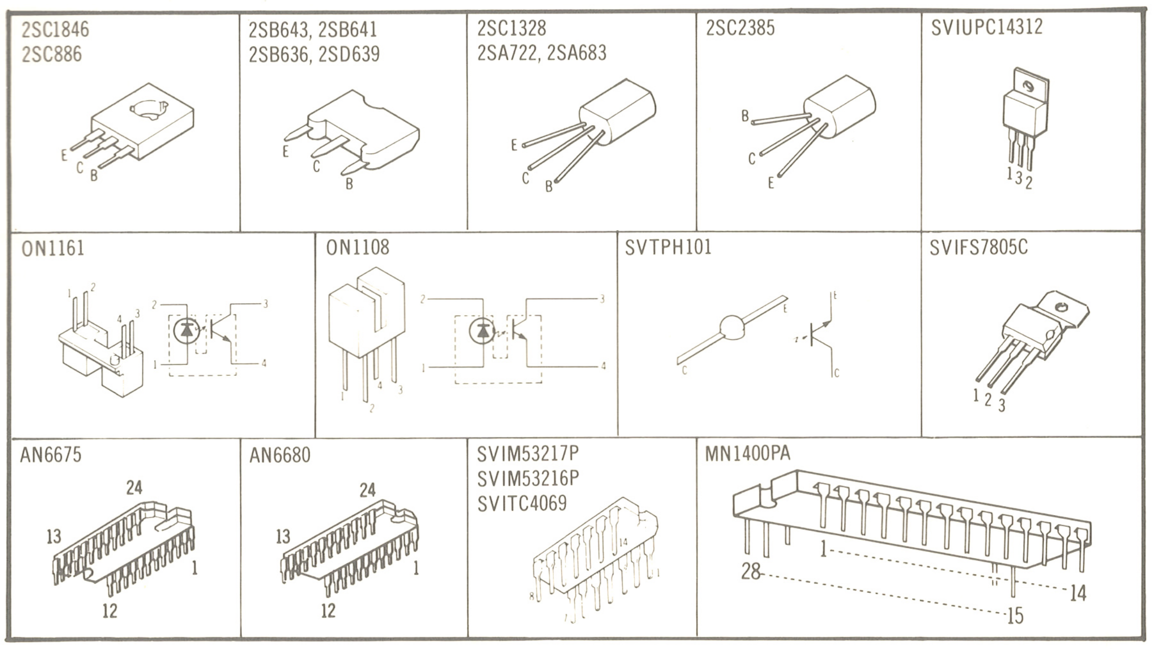
■ SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
IC1
F3 250mA
F2 800mA
T1
BLU
BRN
WHT
BRN
YEL
AC IN
(50/60Hz)
CLEANER SWITCH
S201
CN204
CN203
D1
SVDSIRBA20Z
S1-1
TP1
TP2
TP3
TP4
C1 0.022
C2 0.022
C3 50V1000
C4 0.1
Q601,602
2SA722
Q603～606
2SC2385
Q607,608
2SC1328
Q609,610
2SA683
L ch
R ch
PHONO IN
L+
L-
R+
R-
EPS-310MC
S601-3
S601-4
MC
MM
R605 47
R606 47
R607 82
R608 82
C601 6V2200
C602 6V2200
R609 3.3K
R610 3.3K
R611 5.6K
R612 5.6K
R613 1.5K
R614 1.5K
R617 22
R618 22
R619 680
R620 680
C605 10V47
C606 10V47
C607 0.01
C608 0.01
R623 56(1W)
R624 56(1W)
R625 1.8
R626 1.8
C609 16V10
C610 16V10
R627 2.2K
R628 2.2K
C613 50V1
C614 50V1
R629 10K
R630 10K
C611 6V470
C612 6V470
R601 470
R602 470
C615 0.001
C616 0.001
R603 5.6K
R604 5.6K
C603 6V100
C604 6V100
R615 270
R616 270
R621 3.9
R622 3.9
8.9V
Q611
2SB643
Q612
2SD639
D603
SVDRD11JB2
D601,602
MA150
R635 22K
C618 16V470
R634 33K
R633 4.7K
R632 1K
R631 4.7K
C617 16V47
D601
D602
RL601
(MUTING)
S601-1
S601-2
Lch Out
Rch Out
G
(PHONO OUT)
D202
MA150
Q1
2SC1846
Q2
2SD636
D3
SVDRD9.1JB2
C7 10V330
C8 10V470
R1 39K
IC201
AN6680
R207 56K
R206 18K
R208 220K
C210 0.22
R209 150K
R210 22K
R211 10K
R212 22K
R213 22K
C214 16V100
C212 50V3.3
C211 0.047
C205 6V220
C206 50V
C217 0.1
C209 16V47
R224 27K
R222 390
C208 33P
X201
CN201
CN402
CN404
D478,479
MA150
D471～477
SVDPR5531K
Q471,472
2SB641
SPEED
(33)
(45)
D477
D476
R477 270
REPEAT D475
D473
D472
D474
D471
R472 270
R474 270
R473 270
R471 270
R475 270
Q472
R479 100K
S473
START
S474
Q471
R476 100K
S475 (REPEAT)
(CUEING)
S471
STOP
S472
D478
D479
CN405
END DETECT S403
REST DETECT S402
D401～403
MA150
D402
D403
D401
Q401,402
2SD636
R401 12K
R402 1K
R403 2.2K
R404 15
R405 1K
Q401
Q402
Q403
Q404
Q405
Q403～405
SVTPH101
C401 16V100
C402 0.047
C403 0.047
C404 6V470
C405 16V33
TP12
TP13
TP14
5.0V
12.0V
IC405
SVIFS7805C
R406 4.7K
R407 4.7K
R408 2.2K
R409 2.2K
R410 47K
R411 47K
R412 4.7K
R413 22K
R414 22K
R415 22K
MN1400PA
IC401
Vss
Co9
Co8
Co7
Co6
Co5
Ai3
Ai2
Ai1
Aiφ
Bi3
Bi2
Bi1
Biφ
OSC
VDD
Do3
Do2
Do1
Doφ
SNS1
SNSφ
RESET
TEST
Eo3
Eo2
Eo1
Eoφ


8
9
10
11
12
13
14
IC1
D203 ～ 205
SVDSR-105C
(INNER) (MID) (OUTER)
D203 D204 D205
R223 390
(POWER)
DC 12V IN
S2
S1-2
F1 1A
CN202
CN203
C6 0.015
TP5
D2
SVDRM1Z
D102 MA150
D101 OA90
Q101 2SB641
Q102 2SD636
Q203 2SC1328
R214 470
R219 3.3K
R216 150K
R218 1K
C215 50V1
R203 47
C201 16V33
R217 22K
R215 220
C216 16V47
Q203
D102
D101
Q101
Q102
TP6
R108 4.7K
R109 15K
R110 2.2K
C108 16V100
C109 0.1
C110 0.1
R107 56K
R102 3.3/1W
TP7
C111 0.0056
R103 4.7K
C107 0.1
P2
P1
P3
FG
OSC
A2
A1
A3
IC101 AN6675
R101 10K
TP18
TP19
C205 6V220
R204 2.7K
C202 50V1
C204 0.047
R205 120K
C203 50V1
C206 50V1
TP20
TP21
R104 4.7K
C112 25V4.7
Q204 2SD636
Q204
D201
R221 10K
R220 10K
S202 (SPEED)
AUTO
45
33
C213 470P
TP11
R201 330
R202 1K
TP12
Q201
X201
R222 390
C207 150P
TP23
Q202
C208 33P
C218 50V1
Q201,202 2SD636
C106 0.1
C105 0.1
TP9
TP10
TP8
R106 15
R105 10K
C104 0.1
C103 16V33
C102 16V33
C101 16V33
12.0V
D201 MA150
R450 180
D413
STROBE
IC404 SVIM53216P
Q407,408 2SB643
Q406 2SD636
R427 22K
Q406
PL1 LAMP
IC402 SVITC4069
R431 4.7K
Q408
IC404
IC402
R426 4.7K
D413 SVDGD4205ALC
TP15
R416 33K
OSC
VDD
R418 4.7K
TP20
S401
D404
D404 MA150
TP35
R430 1K
Q407
IC403 SVIM53217P
TP21
R428 4.7K
TP22
R429 4.7K
5.0V
R422 4.7K
R421 4.7K
TP36
TP37
C407 0.001
R419 680
R424 100
PC401
R420 10K
C408 25V22
R423 120K
START POSITION
R425 4.7K
MN1400PA
IC401
Do3
Do2
Do1
Doφ
SNS1
SNSφ
RESET
TEST
Eo3
Eo2
Eo1
Eoφ
TP16
TP17
TP18
TP19
R417 47K
R444 220
CN401
TP34
TP33
R443 680
TP32
OFFSET ANGLE
PC402
R442 470
D414
D415
RL401 (CUEING)
ARM DRIVE MOTOR
CN403
R433 1K
Q409
Q410
R432 1K
D405
D406
C409 0.1
TP24
TP25
TP26
TP27
C411 0.01
R435 470
R437 1K
Q411
Q413
R434 470
C410 0.01
R436 1K
Q412
Q414
D407
D408
R445 47K
R441 1K
R439 22K
R438 22K
R440 1K
TP28
Q416
TP31
Q415
TP29
TP30
D409
D410
D411
R446 180
R447 10K(B)
R448 120
R449 1K(B)
C412 50V1
TP23
Q409,410 2SC1846
Q411,412 2SA885
OFFSET ADJ.
SERVO GAIN ADJ.
Q413～416 2SD636
PC401 ON1161
D405～412 MA150
PC402 ON1108
D414 MA150
D415 SFDNC10-01


12
13
14
OSC
A2
A1
A3
10K
50
IC402
SVITC4069
PL1
LAMP
11
12
13
14
5.0
4
3
2
1
R421 4.7K
R422 4.7K
TP36
TP37
C407
0.001
PC401
R420
10K
START POSITION
R425 4.7K
CN401
TP33
680
P32
4
3
2
1
OFFSET
ANGLE
PC402
R442 470
D414
D415
RL401
(CUEING)
2
1
M
ARM DRIVE MOTOR
CN403
IN ADJ.
Q413～416
2SD636
PC401
ON1161
D405～412
MA150
PC402
ON1108
D414
MA150
D415
SFDNC10-01

TERMINAL GUIDE OF TRANSISTOR AND IC

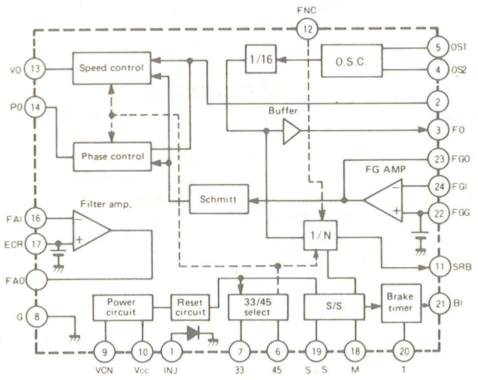

2SC1846
2SC886
E
C
B
2SB643, 2SB641
2SB636, 2SD639
E
C
B
2SC1328
2SA722, 2SA683
E
C
B
2SC2385
B
C
E
SVIUPC14312
1
3
2
ON1161
1
2
3
4
ON1108
1
2
3
4
SVTPH101
E
C
SVIFS7805C
1
2
3
AN6675
24
13
1
12
AN6680
24
13
1
12
SVIM53217P
SVIM53216P
SVITC4069
MN1400PA
1
28
14
15

NOTES:

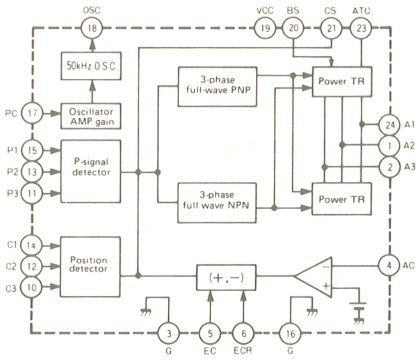
1. **S1-1, 1-2**: Stand-by Switch in "**ON**" position.
2. **S2**: AC-DC Select Switch in "**AC**" position.
3. **S201**: Cleaner ( ) switch in "**ON**" position. (not push condition)
4. **S202**: Speed Select Switch in "**AUTO**" position.
5. **S401**: Cover Switch in "**ON**" position. (push condition)
6. **S402**: Start position Switch in "**OFF**" position. (not push condition)
7. **S403**: Return position Switch in "**OFF**" position, (not push condition)
8. **S471, 472**: Stop Switch in "**OFF**" position. (not push condition)
9. **S473, 474**: Start switch in "**OFF**" position. (not push condition)
10. **S475**: Cueing switch in "**OFF**" position (not push condition)
11. **S476**: Repeat switch in "**OFF**" position (not push condition)
12. **S601-1 ～ 601-4**: MC-MM Select switch in "**MC**" position. (MC MM)
13. **S701**: Power source switch in "**220-240V**" position.
14. ▭ Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
15. This schematic diagram may be modified at any time with the development of new technology.
16. ⚠ indicates that only parts specified by the manufacture be used for safety.

BLOCK DIAGRAM OF IC

IC201 (AN6680)


FNC
12
5
OS1
4
OS2
VO
13
Speed control
1/16
O.S.C.
PO
14
2
Buffer
3
FO
Phase control
23
FGO
FG AMP
24
FGI
Schmitt
22
FGG
Filter amp.
FAI
16
ECR
17
1/N
11
SRB
FAO
G
8
Power circuit
Reset circuit
33/45 select
S/S
Brake timer
21
BI
9
10
1
7
6
19
18
20
VCN
Vcc
INJ
33
45
S S
M
T

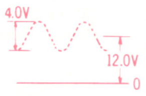
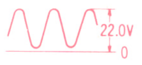
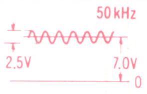
IC101 (AN6675)


OSC
18
VCC
19
BS
20
CS
21
ATC
23
50kHz OSC
3-phase full-wave PNP
Power TR
PC
17
Oscillator AMP gain
24
A1
1
A2
2
A3
P1
15
P2
13
P3
11
P-signal detector
3-phase full wave NPN
Power TR
C1
14
C2
12
C3
10
Position detector
(+,−)
4
AC
3
G
5
EC
6
ECR
16
G

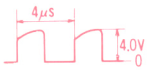
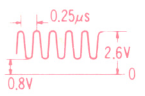
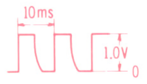
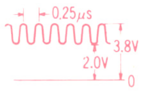
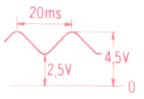
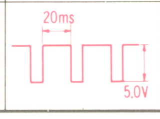
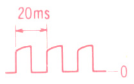
REFERENCE VOLTAGE OF WAVEFORM AT EACH IC

This indicated voltage values and waveform are measured by oscilloscope at 33 rpm rotation.

IC101(AN6675)

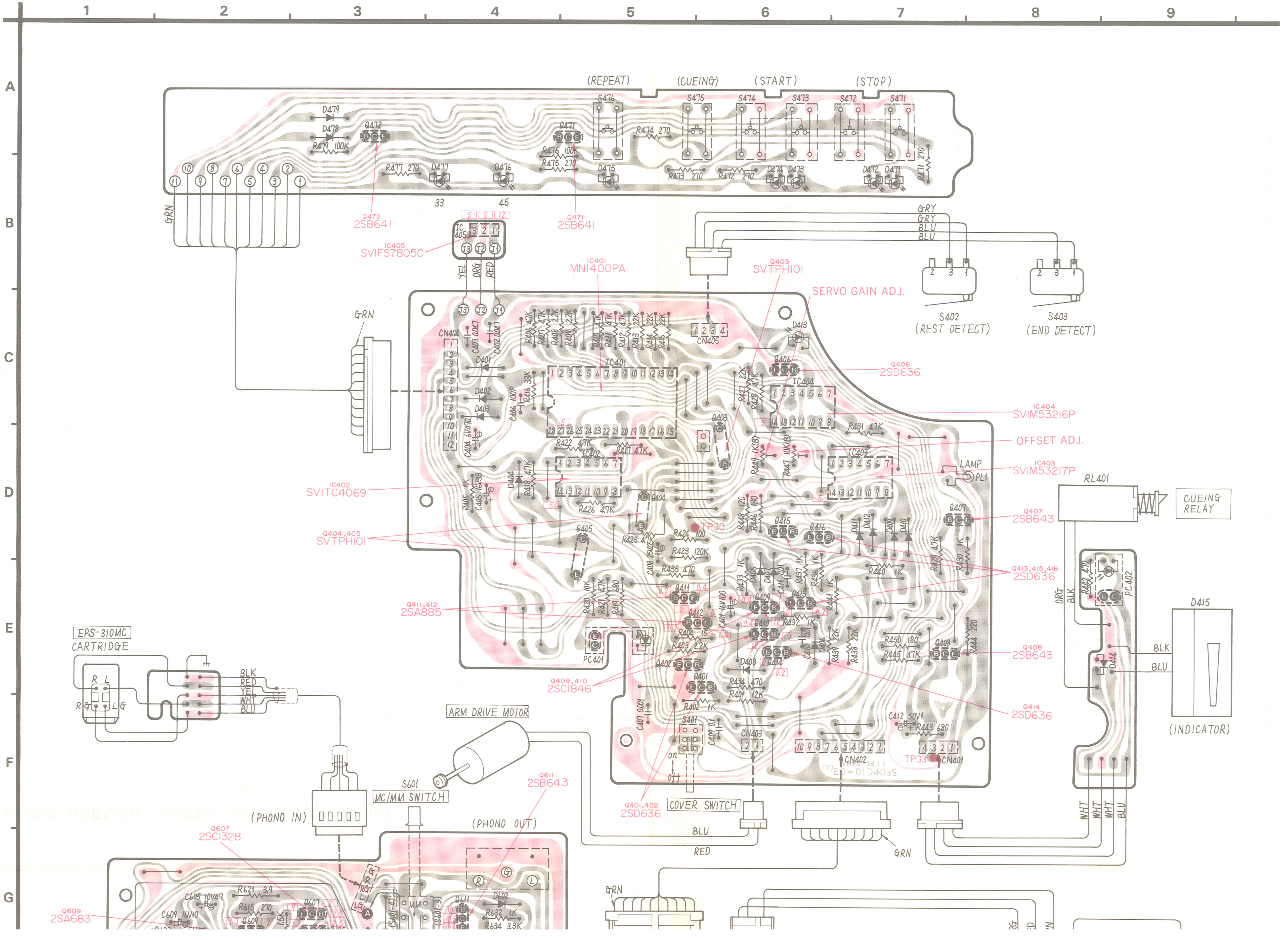
	Start	Stop		Start	Stop		Start	Stop
① ② ㉔		0.2V	⑨	0V	0V	⑱		Same as at left
			⑩	6.4V	6.4V			
③	0V	0V	⑪ ⑬ ⑮		Same as at left	⑲ ⑳ ㉑	11.4V	11.4V
④	2.7V	0.2V						
⑤	5.0V	5.0V	⑫	6.4V	6.2V			
⑥	5.0V	6.3V	⑭	6.6V	7.0V	㉒	0V	0V
⑦	0V	0V	⑯	0V	0V	㉓	11.4V	11.4V
⑧	4.6V	4.6V	⑰	6.4V	6.4V			

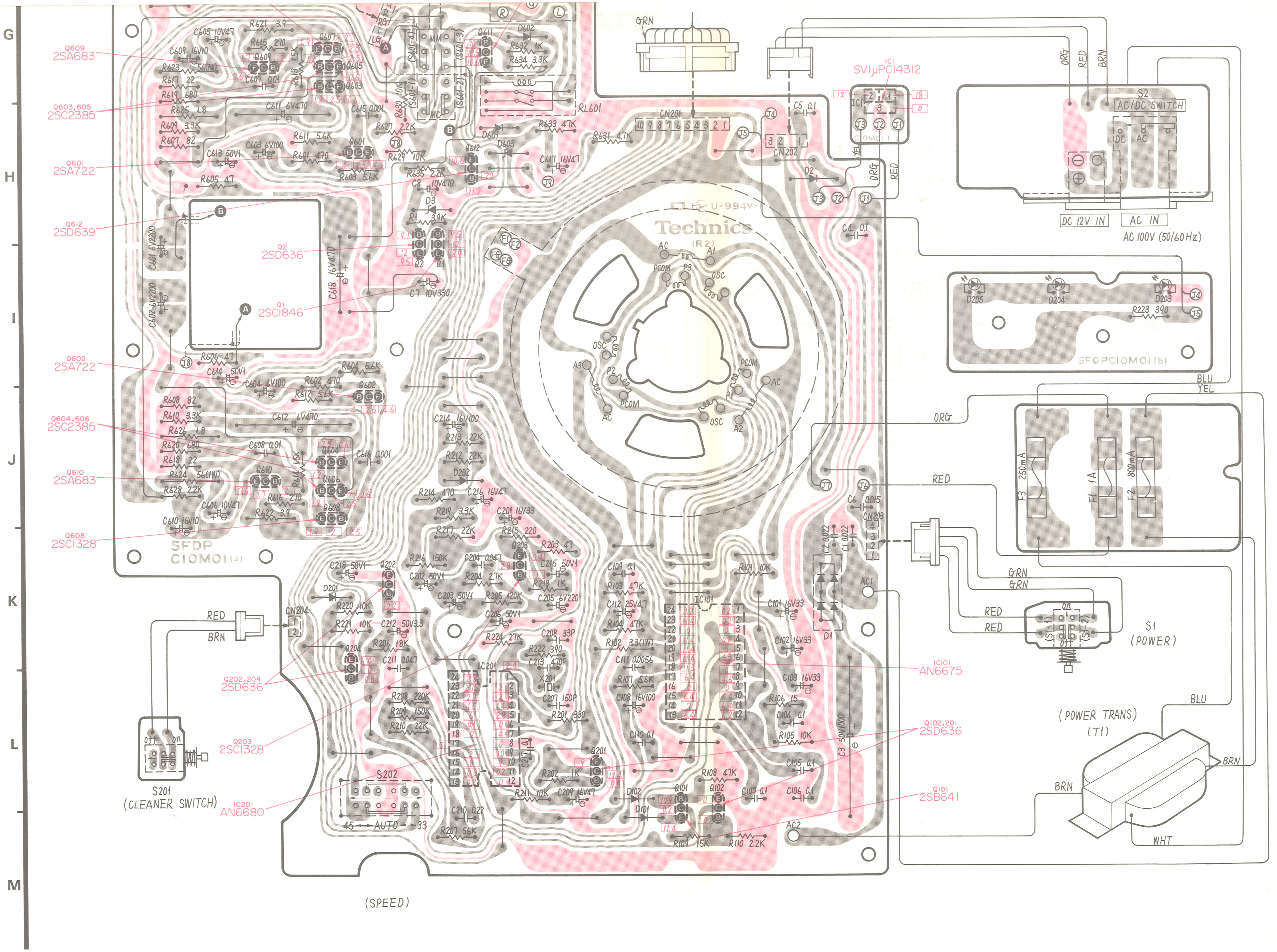
IC201(AN6680)

	Start	Stop		Start	Stop		Start	Stop
①	2.5V	2.4V	⑦	0V	4.0V	⑮	5.0V	8.0V
② ③		Same as at left	⑧	0V	0V	⑯	5.0V	2.0V
			⑨	10.0V	10.0V	⑰	5.0V	5.0V
			⑩	9.0V	9.0V	⑱	0V	0V
④		Same as at left	⑪		Same as at left	⑲	6.8V	0.2V
						⑳	0.4V	6.0V
						㉑	1.6V	1.5V
⑤		Same as at left	⑫	0V	0V	㉒	2.9V	2.7V
			⑬	4.8V	0.2V	㉓		2.8V
			⑭			㉔	2.8V	2.8V
⑥	3.5V	0V						

■ PRINTED CIRCUIT BOARD

▨ Earth (Ground) Lines


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
(REPEAT)
(CUEING)
(START)
(STOP)
S476
S475
S474
S473
S472
S471
D479
D478
R479 100K
Q472
Q471
R476 100K
R475 270
R474 270
R477 270
D477
D476
D475
R473 270
R472 270
D474
D473
D472
D471
R471 270
33
45
GRN
Q472
2SB641
Q471
2SB641
IC405
SVIFS7805C
YEL
ORG
RED
IC401
MN1400PA
Q403
SVTPHI01
SERVO GAIN ADJ.
GRY
GRY
BLU
BLU
S402
(REST DETECT)
S403
(END DETECT)
GRN
CN404
CN405
IC401
Q406
2SD636
IC404
IC404
SVIM5321GP
OFFSET ADJ.
IC403
IC403
SVIM5321TP
LAMP
PL1
RL401
CUEING RELAY
IC402
IC402
SVITC4069
Q407
2SB643
Q404,405
SVTPHI01
TP30
Q413,415,416
2SD636
ORG
BLK
PC402
D415
Q411,412
2SA885
Q408
2SB643
BLK
BLU
EPS-310MC
CARTRIDGE
BLK
RED
YEL
WHT
BLU
PC401
Q409,410
2SC1846
Q414
2SD636
(INDICATOR)
ARM DRIVE MOTOR
S401
CN403
CN402
CN401
TP33
S601
MC/MM SWITCH
Q611
2SB643
(PHONO IN)
(PHONO OUT)
Q401,402
2SD636
COVER SWITCH
BLU
RED
GRN
WHT
WHT
WHT
BLU
Q607
2SC1328
Q609
2SA683
GRN
MM
MC

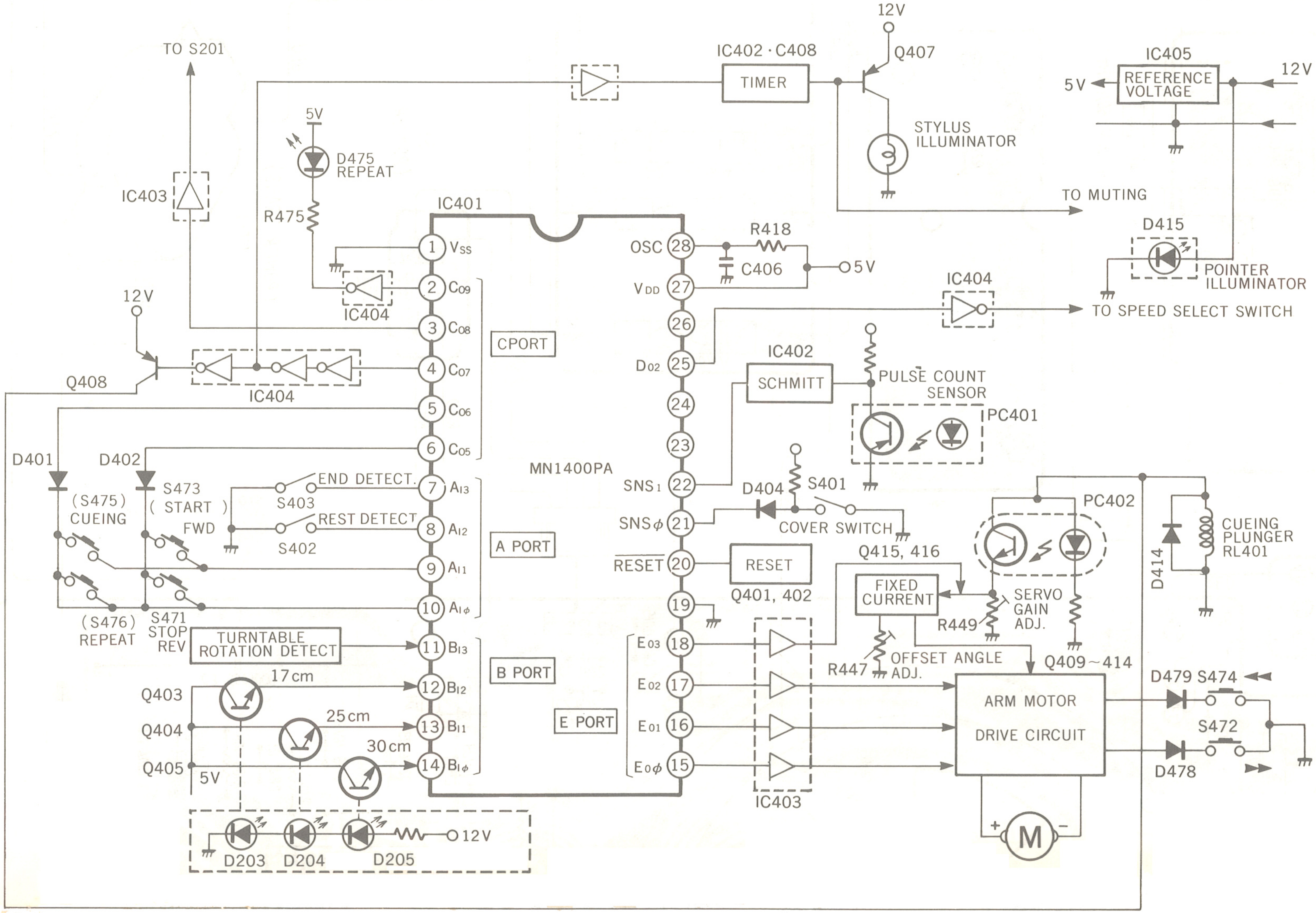

G
H
I
J
K
L
M
Q609 2SA683
Q603,605 2SC2385
Q601 2SA722
Q612 2SD639
Q2 2SD636
Q1 2SC1846
Q602 2SA722
Q604,606 2SC2385
Q610 2SA683
Q608 2SC1328
SFDP C10M01 (a)
Q202,204 2SD636
Q203 2SC1328
IC201 AN6680
S201 (CLEANER SWITCH)
off
on
RED
BRN
CN204
S202
45 — AUTO — 33
(SPEED)
GRN
CN201
CN202
RL601
IC1 SVIµPC14312
Technics (R2)
U-994V
ORG
RED
BRN
YEL
S2 AC/DC SWITCH
DC
AC
DC 12V IN
AC IN
AC 100V (50/60Hz)
D205
D204
D203
R223 390
SFDPC10M01 (b)
BLU
YEL
ORG
RED
F3 250mA
F1 1A
F2 800mA
CN203
GRN
GRN
RED
RED
S1 (POWER)
IC101 AN6675
IC101
IC201
Q102,201 2SD636
Q101 2SB641
(POWER TRANS) (T1)
BLU
BRN
BRN
WHT
C3 50V1000
D1
AC1
AC2

■ REPLACEMENT PARTS LIST (Electric Parts)

NOTES 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUIT			
IC1		SVIUPC14312	Integrated Circuit, Regulator
IC101		AN6675	Integrated Circuit, Drive
IC201		AN6680	Integrated Circuit, Control
IC401		MN1400PA	Integrated Circuit, Micro Computer
IC402		SVITC4069	Integrated Circuit, Inverter
IC403		SVIM53217P	Integrated Circuit, Buffer
IC404		SVIM53216P	Integrated Circuit, Buffer
IC405		SVIFS7805C	Integrated Circuit, Regulator
TRANSISTORS			
Q1, 409, 410		2SC1846-R	Transistor
Q101, 471, 472		2SB641	Transistor
Q2, 102, 201, 202, 204, 401, 402, 406, 413~416		2SD636	Transistor
Q203, 607, 608		**2SC1328-T**	Transistor
Q403~405		SVTPH101-Q2	Photo Transistor
Q407, 408, 611		2SB643	Transistor
Q411, 412		2SA885	Transistor
Q601, 602		2SA722-T	Transistor
Q603~606		2SC2385-G	Transistor
Q609, 610		2SA684NC-R	Transistor
Q612		2SD639	Transistor
PHOTO INTERRUPTERS			
PC401		ON1161	Photo Interrupter
PC402		ON1108	Photo Interrupter
DIODES			
D1	⚠	SVDS1RBA20Z	Rectifier
D2		SVDRM1Z	Diode
D3		SVDRD9.1JB2	Zener, 9.1V
D101		**2OA90**	Diode
D102, 201, 202, 401~412, 601, 602, 478, 479, 414		**MA162A**	Diode
D203~205		SVDSR-105C	Light Emitting Diode
D413		SVDGD4205ALC	Light Emitting Diode
D471~477		SVDPR5531K	Light Emitting Diode
D603		SVDRD11JB2	Zener, 11V
CRYSTAL			
X201		SVQU306115	Crystal
RELAY			
RL401		SFDZC10-01E	Relay
RL601		SFDYC10-01	Relay
SWITCHES			
S1	⚠	ESB6248	Switch, Power
S201		ESB6247	Switch, Cleaner
S202		SFDSC10-01	Switch, Speed Select
S401		ESB6247	Switch, Cover
S402,403		SFDS2MSL-4	Switch, Limit
S471~476		EVQP5R04K	Switch, Start, Stop, Repeat and Cueing
S501	⚠	SFDSHXW01318	Switch, Voltage Adjust
S601		SFDSTWA0118	Switch, MC-MM Select
VARIABLE RESISTORS			
R447		EVN38CA00B14	Variable Resistor, 10kΩ (B)
R449		EVN38CA00B13	Variable Resistor, 1kΩ (B)
FUSES			
F1	⚠	XBA2C10TRO	Fuse, DC Line (1A)
F2	⚠	XBA2C08TRO	Fuse, Secondary (800 mA)
F3	⚠	XBAS2C025T1A	Fuse, Primary (250 mA)
POWER TRANSFORMER			
T1	⚠	SLT12S5E	Power Transformer
LAMP			
PL1		SFDNC10-02	Lmap
RESISTOR			
R1		**ERD25FJ392**	Carbon, 3.9kΩ, 1/4W, ± 5%
R101		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R102		**ERX1ANJ3R3**	Metal Film, 3.3Ω, 1W, ± 5%
R103		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R104		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R105		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R106		**ERD25FJ150**	Carbon, 15Ω, 1/4W, ± 5%
R107		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R108		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R109		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R110		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R201		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R202		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R203		**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
R204		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R205		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ± 5%
R206		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R207		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R208		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R209		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R210		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R211		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R212, 213		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R214		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R215		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R216		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R217		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R218		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R219		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R220, 221		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R222		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R223		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R224		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R401		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R402		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R403		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R404		**ERD25FJ150**	Carbon, 15Ω, 1/4W, ± 5%
R405		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R406, 407		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R408, 409		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R410, 411		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R412		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R413~415		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R416		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R417		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R418		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R419		**ERD25FJ681**	Carbon, 680Ω, 1/4W, ± 5%
R420		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R421, 422		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R423		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ± 5%
R424		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R425, 426		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R427		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R428, 429		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R430		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R431		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R432, 433		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R434, 435		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R436, 437		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R438, 439		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R440, 441		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R442		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R443		**ERD25FJ681**	Carbon, 680Ω, 1/4W, ± 5%
R444		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R445		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R446		**ERD25FJ181**	Carbon, 180Ω, 1/4W, ± 5%
R448		**ERD25FJ121**	Carbon, 120Ω, 1/4W, ± 5%
R450		**ERD25FJ181**	Carbon, 180Ω, 1/4W, ± 5%
R471~475		**ERD25FJ271**	Carbon, 270Ω, 1/4W, ± 5%
R476		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R477		**ERD25FJ271**	Carbon, 270Ω, 1/4W, ± 5%
R479		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R601, 602		ERO25CKF4700	Metal Film, 470Ω, 1/4W, ± 1%
R603, 604		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R605, 606		ERO25CKF47R0	Metal Film, 47Ω, 1/4W, ± 1%
R607, 608		ERO25CKF82R0	Metal Film, 82Ω, 1/4W, ± 1%
R609, 610		ERO25CKF3301	Metal Film, 3.3kΩ 1/4W, ± 1%
R611, 612		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R613, 614		ERO25CKF1501	Metal Film, 1.5kΩ, 1/4W, ± 1%
R615, 616		**ERD25FJ271**	Carbon, 270Ω, 1/4W, ± 5%
R617, 618		**ERD25FJ220**	Carbon, 22Ω, 1/4W ± 5%
R619, 620		**ERD25FJ681**	Carbon, 680Ω, 1/4W, ± 5%
R621, 622		**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%
R623, 624		**ERG1ANJ560**	Metal Oxide, 56Ω, 1W, ± 5%
R625, 626		**ERX12ANJ1R8**	Metal Film, 1.8Ω, 1/2W, ± 5%
R627, 628		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R629, 630		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R631		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R632		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R633		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R634		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R635		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
CAPACITOR			
C1, 2		ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+80}_{-20}$%
C3	⚠	**ECEB1HS102**	Electrolytic, 1000μF, 50V
C4, 5		ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%
C6		ECQM1H153KZ	Polyester, 0.015μF, 50V, ±10%
C7		**ECEA1CS331**	Electrolytic, 330μF, 16V
C8		**ECEA1AS471**	Electrolytic, 470μF,
C101~103		**ECEA1CS330**	Eelctrolytic, 33μF, 16V
C104~107		ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%
C108		**ECEA1ES101**	Electrolytic, 100μF, 25V
C109, 110		ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%
C111		ECQM1H562KZ	Polyester, 0.0056μF, 50V, ±10%
C112		**ECEA25Z4R7**	Electrolytic, 4.7μF, 25V
C201		**ECEA1CS330**	Electrolytic, 33μF, 16V
C202, 203		**ECEA50Z1**	Electrolytic, 1μF, 50V
C204		ECQM1H473KZ	Polyester, 0.047μF, 50V ±10%
C205		**ECEA1AS221**	Electrolytic, 220μF, 10V
C206		**ECEA50Z1**	Electrolytic, 1μF, 50V
C207		ECCD1H151K	Ceramic, 150pF, 50V, ±10%
C208		ECCD1H330K	Ceramic, 33pF, 50V, ±10%
C209		**ECEA1ES470**	Electrolytic, 47μF, 25V
C210		ECQM1H224KZ	Polyester, 0.22μF, 50V, ±10%
C211		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C212		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C213		ECCD1H471K	Ceramic, 470pF, 50V, ±10%
C214		**ECEA1ES101**	Electrolytic, 100μF, 25V
C215		**ECEA50Z1**	Electrolytic, 1μF, 50V
C216		**ECEA1ES470**	Electrolytic, 47μF, 25V
C217		ECKD1E104ZFZ	Ceramic, 0.1μF, 25V, $^{+80}_{-20}$%
C218		**ECEA50Z1**	Electrolytic, 1μF, 50V
C401		**ECEA1ES101**	Eelctrolytic, 100μF, 25V
C402, 403		ECKF1H473ZF	Ceramic, 0.047μF, 50V, $^{+80}_{-20}$%
C404		**ECEA0JS471**	Electrolytic, 470μF, 6V,
C405		**ECEA1CS330**	Electrolytic, 33μF, 16V
C406		ECCD1H101K	Ceramic, 100pF, 50V, ±10%
C407		ECQM1H102KZ	Polyester, 0.001μF, 50V, ±10%
C408		**ECEA1ES220**	Electrolytic, 22μF, 25V
C409		ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%
C410, 411		ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%
C412		**ECEA50Z1**	Electrolytic, 1μF, 50V
C601, 602		**ECEA6Z2200**	Electrolytic, 2200μF, 6V
C603, 604		**ECEA10Z100**	Electrolytic, 100μF, 10V
C605, 606		**ECEA25Z47**	Electrolytic, 47μF, 25V
C607, 608		ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%
C609, 610		**ECEA16M10R**	Electrolytic, 10μF, 16V
C611, 612		**ECEB6Z470**	Electrolytic, 470μF, 6V
C613, 614		**ECEA50Z1**	Electrolytic, 1μF, 50V
C615, 616		ECQM1H102KZ	Polyester, 0.001μF, 50V, ±10%
C617		**ECEA1AS470**	Electrolytic, 47μF, 10V
C618		**ECEB1CS471**	Electrolytic, 470μF, 16V

■ BLOCK DIAGRAM


TO S201
IC402 · C408
TIMER
12V
Q407
STYLUS ILLUMINATOR
TO MUTING
IC405
REFERENCE VOLTAGE
5V
12V
5V
D475 REPEAT
R475
IC403
IC401
1 VSS
2 C09
3 C08
4 C07
5 C06
6 C05
7 AI3
8 AI2
9 AI1
10 AIφ
11 BI3
12 BI2
13 BI1
14 BIφ
CPORT
A PORT
B PORT
E PORT
MN1400PA
IC404
12V
Q408
D401
D402
(S475) CUEING
S473 (START) FWD
END DETECT.
S403
REST DETECT
S402
(S476) REPEAT
S471 STOP REV
TURNTABLE ROTATION DETECT
17cm
25cm
30cm
Q403
Q404
Q405
5V
D203
D204
D205
12V
OSC 28
VDD 27
26
D02 25
24
23
SNS1 22
SNSφ 21
RESET 20
19
E03 18
E02 17
E01 16
E0φ 15
R418
C406
5V
IC404
TO SPEED SELECT SWITCH
D415
POINTER ILLUMINATOR
IC402
SCHMITT
PULSE COUNT SENSOR
PC401
D404
S401
COVER SWITCH
RESET
Q401, 402
Q415, 416
FIXED CURRENT
PC402
SERVO GAIN ADJ.
R449
R447
OFFSET ANGLE ADJ.
Q409～414
IC403
D414
CUEING PLUNGER RL401
ARM MOTOR DRIVE CIRCUIT
D479 S474 ◄◄
S472
D478 ►►
M
+
−